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Technical Reports

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Vol. 14, No. 3.

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NEWSLETTER IN CENTER FOLD

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BIBLIOGRAPHY OF

Technical Reports

November 1950

FRUIT-WASTE UTILIZATION THROUGH INDUSTRIAL RESEARCH AT THE STATE COLLEGE OF WASHINGTON

The disposal of fruit waste from commercial canneries has developed into a serious problem in the Northwest. In many localities canners are prohibited by law from sluicing the waste into city sewage systems, or nearby streams and rivers. Many companies have resorted to trucking their waste away to dumping grounds at considerable expense. Pear waste presents a particularly difficult disposal nuisance; even pigs will not touch it in its unprocessed form. A large cannery may have fifty tons of this waste in an eight-hour day. To find a method of utilizing it, would transform a financial liability into an asset.

The Division of Industrial Research of The State College of Washington at Pullman attacked this problem in two ways: first, by continuous fermentation of the waste to obtain industrial alcohol -- together with use of the dried fermentation residue as a feed; and, second, by drying whole, unfermented pear waste for use as a feed for livestock and poultry. This year the Division successfully developed a method of drying pear waste at a cost of about $30.00 a ton, including amortization of equipment. Feeding tests indicate that, substituted up to 40 per cent as a carbohydrate supplement in a control ration for poultry, the dried waste has a greater nutritive value than feeds with carbohydrate supplements from corn and wheat, retailing at $60.00 and $74.00 a ton respectively.

The first phase of the research was conducted by Dr. Stuart L. Adams, now Assistant Director of Research for Joseph E. Seagram & Sons, Incorporated, at Louisville, Kentucky. He was granted two-years leave of absence by Seagram's to study fruit-waste fermentations while working for his doctorate at The State College of Washington. The project was conducted in co-operation between the College and Seagram's. The college's Division of Industrial Research and Department of Bacteriology and Public Health carried on the work. Much of the research was supervised by Dr. Robert E. Hungate of the latter department. A complete account of the investigation is available in Dr. Adams' doctoral dissertation, "A Study of Fermentation

Processes for the Utilization of Fruit Wastes." The project is summarized briefly in Bulletin 207 of the Division of Industrial Research, entitled "Utilization of Cannery Fruit Waste By Continuous Fermentation." This bulletin is available free of charge.

Dr. Adams found a Java molasses distillery yeast which converted the sugar in pear waste into alcohol in thirty hours with a 90 per cent degree of efficiency. He found that, when supplemented by the addition of small amounts of nitrogen in the form of ammonium sulfate, urea, or ammonium carbonate, pear waste could be fermented continuously in a ten-hour cycle. The cost of producing alcohol commercially by this process was estimated by Dr. Adams at $.32 per wine gallon. Plans were drawn up for a mobile distillery unit to consist of five railway flatcars which would travel from cannery to cannery during the canning season. Capital investment for the unit was estimated at $40,000, excluding equipment for drying stillage residue. This rather high figure, coupled with a drop in the market price of alcohol, caused this phase of the research to be abandoned as not being economically feasible.

Much of Dr. Adams' dissertation is concerned with the effect of various factors on yeast growth and fermentation of fruit waste. His data were obtained chiefly from batch fermentations. An important result of his research was the development of a method for predicting continuous-fermentation cycles and the time required for complete fermentation of the substrate from analysis of batch growth curves. Because of the difficulties involved in laboratory-scale operations with the whole fruit, most of his study was conducted with fruit juices derived from waste. Sufficient information on the reactions of the whole waste was obtained, however, to indicate that data obtained from the juice were applicable to the whole waste.

This year, adopting the second line of attack (that of drying whole, unfermented pear waste), the Division of Industrial Research designed and constructed a double-drum atmospheric drier. This was designed by George A. Medley, an instructor in the Department of Mechanical Engineering, and was constructed in the machine shop of the Division of Industrial Research. The unit was set up and operated by E. Wesley Murbach, a junior chemical engineer on the Division's staff. Seventy 55-gallon drums of frozen pear waste were obtained for the research through arrangements with the California Packing Corporation in Yakima, Washington. The waste consists mainly of cores and peels, with some whole rejected pears, and material removed from the trimming table. To reduce this waste to a uniform material for processing, a four-inch meat grinder equipped with an extrusion plate having 3/16" holes was employed.

The drier rolls were 1.5 feet in diameter and 3 feet long, coated with type 316 stainless steel, and ground to high polish. From data obtained with these rolls, Murbach calculated that two sets of rollers 6 feet in diameter by 8 feet in length would be required to handle 50 tons of waste daily. The rolls were driven by a variable-speed motor with magnetic clutch operating through a reduction gear. A major problem was to prevent caramelizing, or carbonizing, of the waste during the drying process. Doctor knives were provided for removal of the dried product from the rolls. The drier was heated by steam at 170 pounds per square inch pressure. The dried material was rolled into sticks which broke off when they attained a diameter of about one-half inch. During the test runs the drum drier proved capable of removing from the waste about 10 pounds of water per hour per square foot of roll area.

Murbach conducted drying experiments with both fermented and unfermented waste. Cost estimates were made for a commercial plant producing 50 tons of pear waste per eight-hour day for a 30 day season. Estimated costs are about $30.00 per ton of dry unfermented waste and about $60.00 per ton for dried fermentation residue. The estimated capital investment for the processing plant is $54,000.

An electric hot-air drying cabinet was also used in the research, but very low drying rates were found to be a fault of this method, as a crust soon formed on the surface of the waste. The dried product, both from the cabinet drier and the drum drier, was passed through a nine-inch hammer mill using a 1/4" retaining screen. This operation produced a satisfactory granular product. When bags of the ground feed were stacked eight high in storage, no serious caking problem was found to result.

Feeding trials conducted by the Departments of Dairy Husbandry and Poultry Husbandry of the State College of Washington are now in progress. Preliminary results indicate that pear waste dried whole constitutes an excellent low-protein feed for chickens and turkeys. Turkey poults, usually considered rather difficult to raise, are thriving on a control ration using the waste as a part of the carbohydrate supplement. The dried stillage residue has been accepted by sheep in palatability tests; but, in the opinion of agricultural experts, the residue is too low in protein to make a good feed supplement. A bulletin reporting on these feeding experiments and the economics involved will be published this fall.

Submitted by R. L. Albrook
Division of Industrial Research
Washington State Institute of Technology
State College of Washington, Pullman

APPAREL

ABSTRACT. NOTES ON METHODS USED AT THE FATIGUE LABORATORY TO EVALUATE THE THERMAL INSULATION PROVIDED BY COLD WEATHER CLOTHING, BY H. S. BELDING, R. C. DARLING, S. ROBINSON, E. S. TURRELL AND D. R. GRIFFIN. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. ABSTRACT OF INTERIM REPORT. Sep 1943. 1p Mi $1.25, Ph $1.25. PB 99035s

1. Clothing, Cold weather 2. Cold - Physiological effects 3. CMR CIR 24, abstract OEMcmr-54.

FELTING SHRINKAGE OF G. S. SOCKS CONTAINING BLENDS OF WOOL AND SYNTHETIC FIBRES, PRESENTED BY CANADA. Commonwealth Conference on Development, Design and Inspection of Clothing and General Stores, 1950. 58p drawings, graphs, tables Mi $2.75, Ph $7.50. Also available from National Research Council of Canada, Ottawa, Canada. PB 110276

The felting (milling) shrinkages in the presence of soap, of a series of nine batches of experimental G.S. socks knitted from yarns consisting respectively of wool, four wool-nylon blends, nylon and three wool-acetate rayon staple blends, have been examined. Limited supply for free distribution.

CHEMICAL AND ALLIED PRODUCTS

Detergents

SURVEY OF RECENT LITERATURE ON SOAPS VS. SYNTHETIC DETERGENTS (1949-50), by James Kanegis. U. S. Office of Technical Services. Oct 1950. 53p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.75. PB 101800

Survey of the detergent industry for the years 1949-1950 inclusive based solely upon an examination and comparison of the relative merits of both soaps and synthetic detergents. The purpose of this study is to indicate wherein and to what extent each class is superior to the other. Many different fields of application are covered. Household and industrial detergents are evaluated separately and test data cited. Only available U. S. detergents are considered.

Plastics and Plasticizers

AIRCRAFT MATERIAL SPECIFICATION: CELLULOSE NITRATE SHEET FOR COVERING WOODEN PROPELLER BLADES. Gt. Brit. Ministry of Supply. Nov 1949. 2p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 100728

1. Propeller blades, Wooden - Coverings - Gt. Brit. 2. Plastics, Nitrocellulose - Gt. Brit. 3. MS DTD MS 808.

PLASTIC PRODUCTS: IGAMID 6A BAND. I. G. Farbenindustrie A. G., Schkopau, Ger. 1942. 5f (Text in German) Mi $1.25, Enl Pr $1.50. PB 101561
1. Igamid 6A (Trade name) 2. Micro BIOS FD 2475/47, Frames 1-4.
Abstract available as PB 101561s. 1p. Mi $1.25, Ph $1.25.

PLASTIC PRODUCTS: IGEVIN M, A HEAT-SENSITIZING AGENT. I. G. Farbenindustrie A. G., Schkopau, Ger. 1941-1942. 4f (Text in German) Mi $1.25, Enl Pr $1.50. PB 101562
1. Igevin M (Trade name) 2. Micro BIOS FD 2496/47, Frames 1-3.
Abstract available as PB 101562s. 1p. Mi $1.25, Ph $1.25.

PLASTIC PRODUCTS: NOTES FOR A LECTURE ON IGAMIDES. I. G. Farbenindustrie A. G., Schkopau, Ger. 1942-1943. 12f (Text in German) Mi $1.75, Enl Pr $3.75. PB 101560
1. Igamides (Plasticizers) - Germany 2. Micro BIOS FD 2471/47, Frames 1-10.
Abstract available as PB 101560s. 2p. Mi $1.25, Ph $1.25.

REPORTS OF MEETINGS OF VARIOUS SUB-COMMITTEES OF THE TECHNICAL PLASTICS COMMISSION (KUTEKO). I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1942-1944. 169f graph, table (Text in German) Mi $6.25, Enl Pr $22.50. PB 101338
1. Plastics - Germany 2. KUTEKO (Kunstoff-Technische Kommission) 3. Micro BIOS FD 1556/49, Frames 1-167.
Abstract available as PB 101338s. 2p. Mi $1.25, Ph $1.25.

SYNTHETIC RESIN DISPERSIONS LUCRYLAN 10 DP AND 300 NEW. I. G. Farbenindustrie A. G., Schkopau, Ger. 1940-1941. 36f photos, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 101563
1. Lucrylan 10 DP (Trade name) 2. Lucrylan 300 (Trade name) 3. Micro BIOS FD 2498/47, Frames 1-34.
Abstract available as PB 101563s. 2p. Mi $1.25, Ph $1.25.

TESTING ESTERS FOR THEIR SUITABILITY AS PLASTICISERS. I. G. Farbenindustrie A. G., Schkopau, Ger. 1941-1943. 30f (Text in German) Mi $2.00, Enl Pr $5.00. PB 101346
1. Polyvinyl chloride - Plasticizers - Germany 2. Esters - Tests - Germany 3. Micro BIOS FD 2299/47, Frames 1-29.
Abstract available as PB 101346s. 1p. Mi $1.25, Ph $1.25.

Paints, Varnishes and Lacquers

FÄRGER FÖR MALNING AV TRÄ UTOMHUS. (EXTERIOR HOUSE PAINTS, av Börje Andersson och Paul Nylén. Sweden. Statens Kommittee för Byggnadsforskning. 1950. 89p photos, tables (1 fold) (Text in Swedish) Mi $3.75, Ph $11.25. PB 110007
1. Paints - Sweden 2. Sweden. Statens Kommittee för Byggnadsforskning. Meddelanden no. 16, 1950.
Summary in English.

HOSTAPREN 3P, A BINDING AGENT FOR LINOLEUM. I. G. Farbenindustrie A. G., Schkopau, Ger. Aug 1941. 23f tables (Text in German) Mi $2.00, Enl Pr $5.00. PB 101559

1. Hostapren 3P (Trade name) 2. Linoleum - Binding agents - Germany 3. Micro BIOS FD 2470/47, Frames 1-22.
Abstract available as PB 101559s. 1p. Mi $1.25, Ph $1.25.

MANUFACTURE OF BLACK LACQUER CHIPS. Westfälisch-Anhaltische Sprengstoff A. G., Reinsdorf, Ger. 1933-1940. 148f table (Text in German) Mi $5.75, Enl Pr $20.00. PB 101317
1. Lacquers - Manufacture - Germany 2. Lacquers - Patents - Germany 3. Micro BIOS FD 1825/46, Frames 552-698.
English abstract included. Abstract available as PB 101317s. 2p. Mi $1.25, Ph $1.25.

RESEARCH AND PRODUCTION PROGRAMMES AND GRANTS FOR SOLVENTS COMMISSION "LOEKO". I. G. Farbenindustrie A. G., Schkopau, Ger. Mar 1941-Jan 1945. 171f tables (Text in German) Mi $6.50, Enl Pr $23.75. PB 101558
1. Solvents - Research - Germany 2. Varnishes - Research - Germany 3. Loeko (Varnishes and Solvents Commission) 4. Micro BIOS FD 2422/47, Frames 1-168.
Abstract available as PB 101558s. 2p. Mi $1.25, Ph $1.25.

Chemical Engineering and Equipment

ACTIVATED CARBON INDUSTRY OF GERMANY. British Intelligence Objectives Subcommittee. 1946. 433f drawings, tables Mi $9.00, Enl Pr $57.50. PB 101335
1. Carbon, Activated - Germany 2. Carbon, Activated - Production - Germany 3. FIAT FR 1872 4. Micro BIOS FD 1283/49, Frames 1-426.
Abstract available as PB 101335s. 1p. Mi $1.25, Ph $1.25.

ALKAZID GAS ABSORPTION PLANT, MATERIALS OF CONSTRUCTION, by A. Stanley Fromholz, Technical Industrial Intelligence Div., U. S. Dept. of Commerce. U. S. Field Information Agency, Technical. Jan 1949. 5p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.25. PB 96543
1. Alkazid process - Germany 2. Gases - Purification - Germany 3. I. G. Farbenindustrie A. G., Uerdingen, Ger. 4. FIAT FR 1265.
See also PB 486s for addendum.

AMALGAM CELL, CAUSTIC SODA AND CHLORINE PRODUCTION. I. G. Farbenindustrie A. G., Höchst, Ger. 1940-1943. 30f drawings, graphs (Text in German) Mi $2.00, Enl Pr $5.00. PB 101340
1. Amalgam process - Germany 2. Chlorine - Production - Equipment - Germany 3. Sodium hydroxide - Production - Germany 4. Micro BIOS FD 1313/49, Frames 1-27.
Abstract available as PB 101340s. 3p. Mi $1.25, Ph $1.25.

DRAWINGS RELATING TO A PEARL GLUE PLANT. Scheidemandel Motard Werke A. G., Lüneburg, Ger. Mar 1947. 43f drawings only (Legends in German) Mi $2.50, Enl Pr $7.50. PB 101319
1. Glue - Manufacture - Plant design - Germany 2. Micro BIOS FD 1814/47, Frames 1-16.
Abstract available as PB 101319s. 1p. Mi $1.25, Ph $1.25.

FERROPRINTS OF PHENOSOLVAN PLANT. Lurgi Gesellschaft für Wärmetechnik m.b.H., Frankfort, Ger. 1941-1943. 85f drawings only (Legends in German) Mi $3.75, Enl Pr $12.50. PB 101315

1. "Phenosolvan" process - Germany 2. Micro BIOS FD 1847/47, Frames 1-10.

Abstract available as PB 101315s. 2p. Mi $1.25, Ph $1.25.

MESSUNG DER ZÄHIGKEIT VON FLÜSSIGKEITEN BEI HÖHEREN DRÜCKEN. (MEASUREMENT OF THE VISCOSITY OF FLUIDS AT HIGH PRESSURE), BY WALTER FRITZ AND WOLF WEBER. GERMANY. DEUTSCHE AMT FÜR MASS UND GEWICHT. PARTS I AND II. 1947 - 1948. 59p drawing, graphs, tables Mi $2.75, Ph $7.50. PB 101493

Part I. General considerations underlying the new design, measuring technique and schematic diagram of the installation, temperature variations, summary and conclusions. Part II. Experimental technique and exploitation of data, discussion of results, summary and references. Drawings, tables, and graphs included. Translations from Angewandte Chemie B/19 (1947), no. 5, 6 and Angewandte Chemie B/20 (1948), 4. Translated by Henry H. Kolm, edited by F. A. Raven, Jun 1950. Science Translation Service. Translation no. 384.

MONTHLY REPORTS ON THE PHTHALIC ACID PLANT, MAY 1940, JAN 1941, JULY 1941-SEP 1942, MAY 1943-NOV 1944, by Dr. Klaproth. I. G. Farbenindustrie A.G., Schkopau, Ger. 1940-1944. 82f drawings, tables (Text in German) Mi $3.75, Enl Pr $12.50. PB 101610

1. Phthalic acid - Production - Germany 2. Hydroxy compounds - Dehydrogenation - Germany 3. Cyclohexanol - Oxidation - Germany 4. Maleic acid - Recovery - Germany 5. Phthalic acid - Esters - Production - Germany 6. Micro BIOS FD 2569/47, Frames 1-80.

Abstract available as PB 101610s. 2p. Mi $1.25, Ph $1.25.

SODIUM PERBORATE AND SODIUM PERCARBONATE. Henkel & Co., G.m.b.H., Düsseldorf, Ger. 1936-1946. 43f diagr, drawings, tables (Text in German) Mi $2.50, Enl Pr $7.50. PB 101318

1. Sodium perborate - Production - Germany 2. Sodium percarbonate - Production - Germany 3. Micro BIOS FD 1821/47, Frames 1-14.

Abstract available as PB 101318s. 1p. Mi $1.25, Ph $1.25. See also BIOS FR 1367 (PB 79444).

TECHNICAL EXPERIENCE AND INNOVATIONS IN THE CHLORINE ELECTROLYSIS PLANT. I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1944. 97f drawings, tables (Text in German) Mi $4.25, Enl Pr $13.75. PB 101555

1. Chlorine - Electrolysis - Germany 2. Patents - Germany O.Z. 12551 Jan 21, 1941 3. Patents - Germany I 68726 IVb/12c Jan 21, 1941 4. Sulfur dioxide - Recovery - Patents - Germany 5. Micro BIOS FD 2067/47, Frames 1-93.

Abstract available as PB 101555s. 3p. Mi $1.25, Ph $1.25.

Miscellaneous Chemicals

DETERMINATION OF THE MOLECULAR WEIGHT OF HIGH POLYMERS BY MEANS OF ULTRA-CENTRIFUGING AND DIFFUSION MEASURING. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 1943. 135f diagrs, graphs (Text in German) Mi $5.50, Enl Pr $18.75. PB 110392

1. Molecular weights - Determination - Germany 2. Micro BIOS FD 136/47, Frames 1-134.
Abstract available as PB 110392s. 1p. Mi $1.25, Ph $1.25.

EXPERIMENTAL-STAGE PRODUCTION OF METHYLGLYCEROL, CROTONALDEHYDE, AND METHANOL, AND EXPERIMENTS FOR THE HYDROGENATION OF METHYL FORMATE. DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT, FRANKFORT, GER. PT. II. 1941-1943. 793f drawings (Text in German) Mi $9.00, Enl Pr $105.00. PB 110224
1. Micro BIOS FD 1535/48, Frames 770-1514.
For pt. I see PB 110223. For English abstract see PB 110223s.

MECHANICAL DIFFICULTIES OF PRESTONE COOLING AT 300° F. OUTLET TEMPERATURE, by G. W. Frank. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Jul 1931. 38p drawings, tables Mi $2.25, Ph $5.00. PB 101516
1. Prestone (Trade name) 2. V-1570 (Engine) 3. V-1150 (Engine) 4. AAF TSEPP 523-1-164 5. AAF TR 3474.
E.O. no. 523-1-164.

METHODS FOR THE DETECTION OF TOXIC GASES IN INDUSTRY. LEAFLET NO. 10: CHLORINE. Gt. Brit. Dept. of Scientific and Industrial Research. Jul 1939. 10p drawing, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10. PB 101490
The poisonous effects, instructions for carrying out the test, and first aid are given. The object is not to obtain an extreme degree of accuracy, but to give a rapid indication of the relative safety of the atmosphere. DSIR L 10.

NEW THERMAL CONDUCTIVITY METHODS IN GAS ANALYSIS, by Clarke C. Minter. U. S. Naval Research Laboratory. Feb 1950. 12p Mimeo: $.50. PB 110282
The new approach makes it possible to analyze a ternary mixture, such as H_2 and CO_2 in air, without having to remove one of the constituents by absorption. The conventional thermal conductivity bridge is modified in such a manner that "convection" can be combined with "conduction" to produce a bridge which can be made specific for either H_2 or CC_2. The method can be used in the analysis of any mixture in which the thermal conductivities of the constituents are sufficiently different. NRL R3628.

PRODUCTION GRAPHS, CALCULATIONS, RAW MATERIALS FOR PHTHALIC ACID, ETC. I. G. Farbenindustrie A. G., Schkopau, Ger. 1937-1944. 348f graphs, tables (Text in German) Mi $9.00, Enl Pr $52.50. PB 101564
1. Phthalic acid - Production - Germany 2. Formaldehyde - Production - Germany 3. Vinyl chloride - Production - Germany 4. Ethane, Tetrachloro - Production - Germany 5. Ethylene, Trichloro - Production - Germany 6. Ethylene oxide - Production - Germany 7. Ethane, Chloro - Production - Germany 8. Propylene oxide - Production - Germany 10. Emulsifier 1000 (Trade name) 11. Micro BIOS FD 2567/47, Frames 1-346.
Abstract available as PB 101564s. 1p. Mi $1.25, Ph $1.25.

RAIN REPELLENT FOR AIRCRAFT WINDSCREENS, by D. F. Stedman. National Research Council of Canada. Division of Chemistry. Jul 1949. 18p photos, tables

Mi $1.75, Ph $2.50. Also available from National Research Council of Canada, Ottawa, Canada. $.15. PB 110275

1. Water repellents - Tests - Canada 2. Windshields - Water repellents - Canada 3. Airplanes - Windows - Water repellents - Canada 4. FC-10 (Windowscreen rain repellent) 5. Fiberglas Canada, Ltd., Toronto, Canada 6. NRCC 1980.

REPORT ON TETRAETHYL LEAD IN JAPAN, by C. D. Carter. Supreme Commander for the Allied Powers. Economic and Scientific Section. Jul 1950. 88p tables Mi $3.75, Ph $11.25. PB 101413

Methods of decontamination are covered in detail together with data on storage. Existing sources in Japan of TEL made during the war are noted and inspection details presented.

SUMMARY TABLES OF BIOLOGICAL TESTS, VOL. 2, NO. 3, P. 141-201. U. S. National Research Council. Chemical-Biological Coordination Center. Jun 1950. 78p Mi $3.50, Ph $10.00. Also available free from National Research Council, Chemical-Biological Coordination Center, 2101 Constitution Ave., Washington 25, D. C. PB 101202

1. Biological chemistry - Tests.

For v. 1, no. 2 see PB 99693.

SYNTHESIS PLANT YIELDS CALCULATED FROM GAS ANALYSES. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1937-1944. 75f graph, tables (Text in German) Mi $3.50, Enl Pr $11.25. PB 101328

1. Gas - Synthesis - Germany 2. Micro BIOS FD 5617/47, Frames 1-75.

Abstract available as PB 101328s. 2p. Mi $1.25, Ph $1.25.

DETERIORATION STUDIES

PREVENTION OF MOLD GROWTH IN OPTICAL INSTRUMENTS. PART I. PANAMA CANAL ZONE EXPOSURE, by L. Teitell and S. Berk. U. S. Arsenal, Frankford, Pa. Fitman-Dunn Laboratory. Apr 1950. 33p photos, tables Mi $2.25, Ph $5.00. PB 110273

Several recommended methods for preventing fungus growth in optical instruments were tested in the Panama Canal Zone. Binoculars and elbow telescopes were used as test instruments, and they were exposed in a forested area of the Ft. Sherman Reservation for periods up to 17 months. Capsules containing metacresylacetate inside binoculars were the only means found to be completely effective in preventing fungus growth. Organic finishes containing sodium ethyl mercuri thiosalicylate or fenchyl thiocyanoacetate on the interiors were not effective in preventing fungus growth. Also, silica gel desiccators inside binoculars or assembling binoculars under ultraviolet germicidal lamps did not serve to prevent fungus growth. There were indications that radioactive foil around the lenses would stop fungus growth, but the results were inconclusive. Metacresylacetate was found to be very corrosive to the cupric oxide blackened copper alloy prism shields, and it is recommended that this fungicide not be used where the vapors or its hydrolysis products can attack materials in instruments. Project TB4-840A. FALR R 968.

Communication Equipment

AUTOMATIC EXPOSURE DEVICE IN RADIOGRAPHY. Siemens-Reiniger-Werke A. G., Erlangen, Ger. 1941-1945. 9f photos, diagr (Text in German) Mi $1.25, Enl Pr $2.50. PB 101277

1. Radiography - Apparatus - Germany 2. Micro BIOS FD 5472/47, Frames 1-8.

Abstract available as PB 101277s. 1p. Mi $1.25, Ph $1.25.

GENERAL PURPOSE BOLOMETER AMPLIFIER, by O. A. Tyson. U. S. Naval Research Laboratory. Apr 1950. 22p photos, diagr, drawing, graphs Mi $2.00, Ph $3.75. PB 101391

An amplifier has been developed for general use in antenna and r-f measurements in conjunction with bolometer or crystal detectors. Performance characteristics of the amplifier for this use are variable band-pass from 6 to 300 cycles, continuously tunable center frequency from 400 to 5000 cycles, automatic compensation for transmitter fluctuations within +3 db, an optional ratio expander to the eighth power of the signal input from the detector, a minimum useful input of 10^{-7} volt, and a linear response over a range of 100 db. Design features of the amplifier are a heterodyne arrangement coverting to a fixed i-f working through a variable-Q quartz filter, a three-stage van der Bijl ratio expander, and a second amplifier operating on a fixed monitor to control the gain of the signal amplifier in compensation for transmitter fluctuations. The desired performance is achieved with an over-all weight of 60 pounds and a volume of 2 cubic feet in a single package. NRL R3650.

HIGH-FREQUENCY RADIO PROPAGATION CHARTS FOR SUNSPOT MINIMUM AND SUNSPOT MAXIMUM. U. S. National Bureau of Standards. Central Radio Propagation Laboratory. Dec 1947. 182p diagrs, graphs Mi $6.75, Ph $23.75. Also available on loan from Office of Technical Services, U. S. Dept. of Commerce, Washington, 25, D. C. PB 101367

1. Radio waves - Propagation - Sunspot effects 2. International Telecommunications Union 3. CRPL 1-2, 3-1.

Prepared for the Provisional Frequency Board, International Telecommunications Union.

HIGH-FREQUENCY RADIO PROPAGATION CHARTS FOR SUNSPOT MINIMUN AND SUNSPOT MAXIMUM. SUPPLEMENT TO REPORT CRPL-1-2, 3-1. U. S. National Bureau of Standards. Central Radio Propagation Laboratory. Nov 1948. 23p diagrs, tables Mi $2.00, Ph $3.75. Also available on loan from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. PB 101367s

1. CRPL 1-2, 3-1.

Supplement 1 to PB 101367.

RADIO-FREQUENCY STANDARD CAPACITOR TO PROVIDE MINUTE CAPACITANCE INCREMENTS, by John A. Connor. U. S. Office of Naval Operations. n.d. 6p drawings, table Mi $1.25, Ph $1.25. PB 110125

1. Capacitors, Radio frequency 2. Capacitance - Measurements 3. Vacuum tubes - Interelectrode capacities

COMPENSATION TECHNIQUE APPLICABLE TO THE BETHE-HOLE COUPLER, by William E. Leavitt. U. S. Naval Research Laboratory. May 1950. 13p photos, diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 101394

Directional couplers are not always advantageous as power monitors because the coupling varys with wavelength. Theoretical and experimental work has been completed for compensating such devices, which couple the power proportional to the inverse wavelength squared. Compensating is accomplished by means of a lossy dielectric in the auxiliary line. Experimental work indicated encouraging broadband flat-response results. The dielectric used, however, is not completely satisfactory since its electrical characteristics are sensitive to temperature changes. NRL R 3662.

EFFECT OF HYDROSTATIC PRESSURE ON THE CURIE POINT OF BARIUM TITANATE SINGLE CRYSTALS, by W. J. Merz. Massachusetts Institute of Technology. Laboratory for Insulation Research, Cambridge, Mass. Jul 1950. 33p drawings, graphs Mi $2.25, Ph $5.00. PB 101418

The influence of hydrostatic pressure on the Curie temperatures of $BaTiO_3$ single crystals has been investigated. With increasing pressure a linear shift of the Curie point towards lower temperatures is observed with a slope of -5.8×10^{-3} degree/at. This information allows us to calculate the change of the specific heat and of the compressibility at the Curie point according to Ehrenfest's relation. Thus it is possible to relate the pressure effects to the change of the lattice constant. The decrease of the Curie temperature with shrinking lattice constant is nearly the same as that observed when Sr ions are substituted for Ba in the titanate crystal. In addition, measurements have been made on the influence of pressure on the first order transition point near 0°C. Contains also: Electromechanical behavior of $BaTiO_3$ single-domain crystals, by M. E. Caspari and W. J. Merz. Jul 1950. This document was made possible through support extended to the Massachusetts Institute of Technology, Laboratory for Insulation Research, jointly by the Navy Department (Office of Naval Research), the Army Signal Corps and the Air Force (Air Materiel Command) under ONR Contract N5ori-07801, NR-074-041. MIT LIR TR 29. MIT LIR TR 30.

EXPERIMENTAL INVESTIGATION OF A LONG ELECTRON BEAM IN AN AXIAL MAGNETIC FIELD, by J. Sigvard A. Tomner. Chalmers University of Technology, Gothenburg, Sweden. 1950. 19p diagrs, graphs Mi $1.75, Ph $2.50. PB 100516

1. Electrons - Beams - Sweden 2. Magnetic fields - Sweden 3. Chalmers University of Technology, Gothenburg, Sweden. Transactions no. 92 4. Chalmers University of Technology, Gothenburg, Sweden. Research Laboratory of Electronics. Report no. 10.

MEASUREMENTS OF SECONDARY-ELECTRON EMISSION FROM COMMON PHOSPHORS, by W. A. White. U. S. Naval Research Laboratory. May 1950. 14p photos, diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 101420

Measurements of secondary-emission ratio for P-1, P-4, P-5, and P-11 phosphors have been made over a range of primary-electron energy from 300 to 2500 electron volts. A dynamic method of measurement employing pulse technique is used, in

which the ratio of two transient-displacement currents determines the secondary-emission ratio. The success of the method is attributable to the technique devised for establishing a stable initial-reference surface potential. The values of secondary-emission ratio are shown in graphical form. NRL R 3661.

METHOD OF PRODUCING SIMULTANEOUS CINEMATIC RECORDS OF POSITION AND DEPTH USING RADAR AND ECHO SOUNDING, by R. E. Freeman. National Research Council of Canada. Radio and Electrical Engineering Division. Laboratories. Feb 1950. 17p photos, diagrs, maps, graphs Mi $1.75, Ph $2.50. Also available from National Research Council of Canada, Ottawa, Canada, $.15.
PB 100755

Cinematic marine sounding records were produced using radar to fix the positions at which echo soundings were taken. A merchant marine radar display was photographed simultaneously with a depth-recorder display to produce a permanent record of depth and position. The experimental runs were carried out on a small lake, and it was found that the lake could be rapidly and accurately sounded by this method. The use of radar for position fixing not only greatly accelerated the sounding program but allowed the work to be carried out under all conditions of visibility and eliminated the need for land-based position fixing. NRCC 2084.

REGENERATIVE FREQUENCY DIVIDER OF IMPROVED STABILITY, by G. K. Jensen. U. S. Naval Research Laboratory. Jan 1950. 19p photos, diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 101421

The final development of three ten-to-one regenerative frequency dividers, dividing from 100 to 10 kc, 10 to 1.0 kc, and 1.0 to 0.1 kc, is described. These dividers possess very stable operating characteristics for wide variations in plate voltage and input signal voltage, and, in addition, exhibit desirable self-starting and non-critical tuning characteristics as well as circuit simplicity and small physical size. NRL R 3653.

TESTS WITH HIGH FREQUENCY IRON-CORD COILS FOR A 20-200 METRES WAVE RANGE, by Dr. Ing. L. Pungs. Braunschweig, Ger. Technische Hochschule. Institut für Fernmelde- und Hochfrequenztechnik. Jul 1935-Jun 1936. 34f drawing, diagrs, graphs (Text in German) Mi $2.25, Enl Pr $6.25. PB 110371

1. Coils - Cores, Iron - Germany 2. Colorimeters - Germany 3. Range coils - Germany 4. ZWB FB 394/1 5. ZWB 394/2 6. Micro BIOS FD 945/49, Frames 1-34.

Abstract available as PB 110371s. 1p. Mi $1.25, Ph $1.25.

Generators, Motors, Transmission, Distribution, and Allied Equipment

NOTES ON THE DESIGN AND CONSTRUCTION OF REGULATED POWER SUPPLIES, by James L. Lawson. Massachusetts Institute of Technology. Radiation Laboratory. Feb 1945. 9p diagrs Mi $1.25, Ph $1.25. PB 101548

1. Generators, Electric - Design 2. MIT Rad Lab 44.

Miscellaneous

CHARGE STORAGE IN CATHODE-RAY TUBES, by C. V. Parker. U. S. Naval Research Laboratory. Mar 1950. 25p photos, diagrs, graphs Available from Office

of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.75. PB 101395

The charging process in cathode-ray tubes used for static storage of information is analyzed both for a stationary spot and a linear scan, with and without redistribution of secondary electrons. Approximate equations are derived for the surface potentials and charging current as functions of time and other parameters, such as primary beam current, writing speed, and initial potentials. NRL R 3648.

DESIGN AND DEVELOPMENT SWITCH, WATERTIGHT, SNAP ACTION, D.P.S.T. FIFTH AND FINAL REPORT, by C. H. Billman. Acro Switch Company, Columbus, Ohio. Mar 1950. 11p drawings Mi $1.75, Ph $2.50. PB 101165

1. Switches, Electric 2. SIG Contract W36-039-sc-38144.

File #8394-PH-48-91 (3733) from list of October 1949 to March 31st 1949.

DIELECTRICS IN ELECTRICAL ENGINEERING, by A. von Hippel. Massachusetts Institute of Technology. Laboratory for Insulation Research, Cambridge, Mass. Mar 1950. 50p photos, drawings, graphs Mi $2.50, Ph $6.25. PB 110317

1. Dielectrics 2. Barium titanate - Crystal structure 3. Barium titanate - Ferroelectricity 4. MIT LIR TR 27 5. MIT LIR TR 28.

O.N.R. Contract N5 ori-07801. Technical report XXVIII is issued with this: Ferroelectricity, domain structure, and phase transitions in barium titanate, by A. von Hippel.

INVESTIGATIONS INTO QUESTIONS OF HIGH TENSION DIRECT CURRENT TRANSMISSION. Siemens Schuckertwerke A. G., Berlin. 1938-1941. 288f drawings, graphs (Text in German) Mi $9.00, Enl Pr $38.75. PB 101348

1. Currents, Electric - Direct - Transmission - Germany 2. Micro BIOS FD 1009/49, Frames 1-188.

Abstract available as PB 101384s. 2p. Mi $1.25, Ph $1.25.

METHODS FOR THE DETERMINATION OF WATER, CHLORINE, LIQUOR, SULPHATE, ETC. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1938-1942. 47f diagrs, tables (Text in German) Mi $2.50, Enl Pr $7.50. PB 101045

1. Gasoline - Water content - Determination - Germany 2. Catalysts - Tests - Germany 3. Cobalt - Determination - Germany 4. Thorium oxide - Determination - Germany 5. Chlorine - Determination - Germany 6. Olefins - Determination - Germany 7. Sulfate ions - Determination - Germany 8. Micro BIOS FD 5447/47, Frames 1-47.

Abstract available as PB 101045s. 2p. Mi $1.25, Ph $1.25.

QUALIFICATION TESTS OF RADIO-FREQUENCY COAXIAL CABLE TYPE RG-82/U, by E. J. Luoma. U. S. Air Materiel Command. Engineering Division. Components and Systems Laboratory. Electronic Subdivision. Apr 1950. 6p tables Mi $1.25, Ph $1.25. PB 110123

1. Cables, Radio - Tests 2. RG-82/U (Radio-frequency coaxial cable) 3. AAF TSELS 50-21.

STABILIZED POWER SUPPLY FOR VOLTAGES BELOW TWENTY VOLTS, by P.A. Redhead. National Research Council of Canada. Radio and Electrical Engineering Division. Jul 1950. 5p photo, diagr Mi $1.25, Ph $1.25. Also available from National Research Council of Canada, Ottawa, Canada $.10. PB 101163

A stabilized power supply adjustable over the range zero to twenty volts is described. The device has an internal impedance of 0.01 ohms, and can stabilize a current of 500 milliamperes over its complete voltage range. Higher currents may readily be obtained by using larger rectifiers. NRCC ERA 187. NRCC 2171.

ÜBER DIE MÖGLICHKEITEN DER WERKSTOFFSPARNIS BEIM BAU VON ZYKLOTRONMAGNETEN (POSSIBILITY OF SAVING WORKING MATERIAL IN THE CONSTRUCTION OF CYCLOTRON MAGNETS), by H. Lauge and K. Fink. Kaiser Wilhelm Institut für Eisenforschung, Düsseldorf, Ger. 1943. 35f diagrs, graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 101287
1. Cyclotrons - Magnets - Manufacture - Germany 2. ZWB FB 1788 3. Micro BIOS FD 901/49, Frames 1-33.
Abstract available as PB 101287s. 1p. Mi $1.25, Ph $1.25.

FUELS AND LUBRICANTS

DE-LEADING OF FUELS. I. G. Farbenindustrie A. G., Oppau, Ger. 1942-1943. 66f drawing, graphs, tables (Text in German) Mi $3.00, Enl Pr $10.00. PB 101272
1. Fuels, Aviation - Lead content - Germany 2. Ethylene bromide - Germany 3. B4 (Aviation fuel) 4. Micro BIOS FD 2871/46, Item 25, Frames 1-64.
Abstract available as PB 101272s. 2p. Mi $1.25, Ph $1.25.

DETAILS OF THE FISCHER-TROPSCH PROCESS. Hoesch-Benzin G.m.b.H., Dortmund, Ger. 1938-1944. 162f drawings, tables (Text in German) Mi $6.25, Enl Pr $22.50. PB 101337
1. Fischer-Tropsch process - Germany 2. Catalysts - Reactivation - Germany 3. Micro BIOS FD 71/48, Frames 1-157.
Abstract available as PB 101337s. 2p. Mi $1.25, Ph $1.25.

EFFECT OF CHEMICAL REACTIVITY OF LUBRICANT ADDITIVES ON FRICTION AND SURFACE WELDING AT HIGH SLIDING VELOCITIES, by Edmond E. Bisson, Max A. Swikert, and Robert L. Johnson. U. S. National Advisory Committee for Aeronautics. Aug 1950. 31p photos, drawing, graphs, tables Mi $2.25, Ph $5.00. PB 101378

Kinetic-friction experiments were conducted on steel specimens lubricated with cetane containing sulfur and chlorine compounds of different chemical reactivities. Data were obtained at sliding velocities from 75 to 7000 feet per minute with loads from 269 to 1017 grams (126,000 to 194,000 lb/sq in. initial Hertz surface stress). Increasing the load decreased the critical sliding velocity as a linear function of initial Hertz surface stress. NACA TN 2144.

EFFECT OF INITIAL MIXTURE TEMPERATURE ON FLAMES SPEEDS AND BLOW-OFF LIMITS OF PROPANE - AIR FRAMES, by Gordon L. Dugger. U. S. National Advisory Committee for Aeronautics. Aug 1950. 20p drawing, graphs, tables Mi $1.75, Ph $2.50. PB 101363

Flame speeds in the laminar-flow regions and blow-off limits in both the laminar - and turbulent-flow regions were determined as functions of mixture composition for Bunsen type propane - air flames at various initial mixture temperatures from 85° to 650° F. The maximum flame speed increased with initial temperature at an increasing rate. NACA TN 2170.

EINFLUSS DES EISENGEHALTES IN ALUMINIUMCHLORID AUF DIE POLYMERISATION DES CRACKBENZINE (EFFECT OF THE IRON CONTENT IN ALUMINUM CHLORIDE ON THE POLYMERIZATION OF CRACKED BENZINE), by Clar. Ruhrchemie A. G., Oberhausen-Holten, Ger. Dec 1944. 6f tables (Text in German) Mi $1.25, Enl Pr $2.50. PB 101336

1. Gasoline - Polymerization - Germany 2. Gasoline - Catalysts - Germany 3. Micro BIOS FD 807/48, Frames 1-5.

Abstract available as PB 101336s. 1p. Mi $1.25, Ph $1.25.

EXPLOSIONS IN THE ETHYLENE OXIDE PLANT AND THEIR CAUSES. I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1944. 126f graphs (Text in German) Mi $5.00, Enl Pr $17.50. PB 96799

1. Ethylene oxide - Explosions - Germany 2. Micro BIOS FD 2623/47, Frames 1-123.

English abstract included.

GASIFICATION OF SOLID FUELS; MACHINERY, ETC. Lurgi Gesellschaft für Warmetechnik m.b.H., Frankfurt am Main, Ger. n.d. 23f (Text in German and English) Mi $2.00, Enl Pr $5.00. PB 101322

1. Gas - Manufacture - Germany 2. Fuels, Solid - Gasification - Germany 3. Micro BIOS FD 808/46, Frames 1-23.

Abstract available as PB 101322s. 2p. Mi $1.25, Ph $1.25.

GERMAN COAL TAR AND BENZOLE INDUSTRIES DURING THE PERIOD 1939-1945, PREPARED by A. L. Deadman and G. H. Fuidge. British Intelligence Objectives Sub-Committee. 1950. 199p diagrs (1 fold), drawings (8 fold), tables (1 fold) Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $1.75. PB 101473

1. Tar - Distillation products - Germany 2. Pitch - Production - Germany 3. Tar-oil - Production - Germany 4. Anthracene - Production - Germany 5. Naphthalene - Production - Germany 6. Phenol - Production - Germany 7. Coal tar products - Preparation - Germany 8. Benzene - Production - Germany 9. Naphtha - Uses - Germany 10. Resins, Cumarone - Production - Germany 11. BIOS OR 25.

S.O. Code no. 51-283-25.

HYDROGENATION OF PETROLEUM AND LIGNITE TAR DISTILLATES, by E. A. Clarke, C. C. Chaffee and L. L. Hirst. U. S. Bureau of Mines. Apr 1950. 53p drawings (2 fold), graphs, tables Mi $2.75, Ph $7.50. PB 100985

1. Petroleum - Hydrogenation 2. Lignite - Hydrogenation 3. BM RI 4676.

LIQUID OXYGEN AS AN OXIDANT FOR ROCKET PROPULSION, by R. C. Murray and J.M.F. White. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Mar 1947. 14p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.75. PB 101440

Methods of production, storage, transport, transfer and of use in rockets are reviewed and discussed, and the risks in handling outlined. Comparative rocket performance calculations for the propellants, liquid oxygen/kerosene, nitric acid/kerosene, and hydrogen peroxide/kerosene, have been made. In these, the weight and volume specific impulses for the propellants have been worked out both on the basis of the weight or volume of the propellants, and also of the weight or volume of the propellants, and also of the weight or volume of propellant and whole motor assembly. It is concluded that since the volume of plant required for liquid-

based propellants is very high compared with that for nitric acid or hydrogen peroxide, it can only be considered for units on aircraft where this is a secondary consideration, and low price and accessibility are of greater importance. Tables are included, references attached. Cover date is 1950. S.O. Code no. 23-2367. ARC RM 2367.

SYNTHETIC FUELS FOR AERO AND MOTOR CAR ENGINES. Ruhrchemie A. G., Oberhausen, Ger. 1938-1940. 38f graphs, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 101276

1. Fuels, Synthetic - Production - Germany 2. Micro BIOS FD 5450/47, Frames 1-35.

Abstract available as PB 101276s. 3p. Mi $1.25, Ph $1.25.

TABLES OF THERMODYNAMIC FUNCTIONS FOR ANALYSIS OF AIRCRAFT-PROPULSION SYSTEMS, by Vearl N. Huff and Sanford Gordon. U. S. National Advisory Committee for Aeronautics. Aug 1950. 99p tables Mi $4.25, Ph $12.50. PB 101361

Tables of thermodynamic functions are presented for 42 substances containing the elements argon, aluminum, boron, carbon, chlorine, fluorine, hydrogen, lithium, nitrogen, and oxygen. The functions are tabulated at 298.16° K and every 100° from 300° to 6000° K. Interpolation formulas are given that permit determination of self-consistent values at any temperature from 1000° to 6000° K. NACA TN 2161.

USE OF RR OIL (KARBORESIN R) IN A PRIMER FOR CONCRETE FLOORS. TESTS OF ESTERS FOR COMPATIBILITY WITH LUBE OILS AND BUNA. REPRINTS OF ARTICLES ON LUBRICATION. I. G. Farbenindustrie A. G., Schkopau, Ger. 1943-1944. 41f diagrs, graphs, tables (Text in German) Mi $2.50, Enl Pr $7.50. PB 101001

1. Karboresin R (Trade name) 2. Esters - Tests - Germany 3. Lubrication - Germany 4. Ethylene - Polymerization - Germany 5. Micro BIOS FD 2566/47, Frames 1-39.

Abstract available as PB 101001s. 2p. Mi $1.25, Ph $1.25. Reprints are: Chemical and physical conditions of satisfactory lubrication, by Dr. A. von Philippovich, from Oel und Kohle nr. 37/40, Oct 1, 1944; Synthetic lubricants, by Prof. A. W. Schmidt and Dr. V. Schoeller, from Oel und Kohle nr. 45-48, Dec 1, 1944; Solvent extraction of lube oils, by L. Hofmann, from Oel und Kohle nr. 45-48 Dec 1, 1944; and extracts from a book by E. Baroni on Polymerisation and depolymerisation, p. 354-363 and 389.

HIGHWAYS AND BRIDGES

COMMITTEE REPORT AND MANUAL OF RECOMMENDED TESTING PROCEDURES ON LOAD CARRYING CAPACITY OF ROADS AS AFFECTED BY FROST ACTION. U. S. HIGHWAY RESEARCH BOARD. PRESENTED AT THE TWENTY-NINTH ANNUAL MEETING, 1949. May 1950. 22p photos, graphs Available from Highway Research Board, National Research Council, 2101 Constitution Ave., Washington 25, D. C. $.45. PB 110113

1. Roads - Surface treatment - Frost damage 2. Roads - Structural stability. Research report no. 10-D.

LUMBER AND WOOD PRODUCTS

DESTILLIERBARE VERBINDUNGEN MIT LIGNINGERÜST ERHALTEN DURCH KOCHUNG VON HOLZ MIT NATRIUMSULFHYDRAT. (WATER SOLUBLE LIGNIN OBTAINED BY COOKING WOOD WITH SODIUM HYDROSULFIDE), von Terje Enkvist, Mauri Moilanen und Bo Alfredsson. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. 1949. 8p graphs, tables (Text in German) Mi $1.25, Ph $1.25. PB 101411

1. Sodium sulfides - Uses - Sweden 2. Lignin, Water soluble - Sweden 3. Wood - Distillation products - Sweden 4. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 41.

Aus der Holzchemische Abteilung des Schwedischen. Instituts für Holzforschung Sätryck ur Svensk Papperstidning 52 (1948), nr 3, s. 53. Abstracts in English and Swedish.

GLOSSARY OF JAPANESE FORESTRY TERMS, COMPILED by Thomas Sasaki and K. Watanabe. Supreme Commander for the Allied Powers. Natural Resources Section. Jul 1950. 134p (Text in Japanese and English) Mi $5.50, Ph $17.50. PB 101414

The close association of American and Japanese foresters during the present Allied Occupation of Japan has made necessary an exact comparison of Japanese and English forestry terminologies. This glossary was compiled to meet this need. It should result in use of Japanese forestry terms with more precise meaning and greater uniformity throughout Japan. This report is limited to terms commonly used by foresters and persons engaged in forest and related industries. SCAP NRS 131.

HANDBOOK OF WOODCUTTING, by P. Harris. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research. Feb 1946. 45p photos, drawings, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 101023

This publication tries to meet the need for information on correct technique in sawmilling and woodworking by providing a handy reference book with a scientific background. As far as possible the mathematical aspects of the subject have been omitted, later to be dealt with in a separate work. S.O. Code no. 47-133-0-50.

KOCHUNG VON VANILLYLALKOHOL UND EINIGEN ANDEREN MODELLSUBSTANZEN FÜR LIGNIN MIT SCHWEFELWASSERSTOFF ODER NATRIUMSULFHYDRAT. (COOKING OF VANILLYL ALCOHOL AND SOME OTHER LIGNIN MODELS WITH HYDROGEN SULFIDE OR SODIUM HYDROSULFIDE), von Terje Enkvist und Mauri Moilanen. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. 1949. 6p Mi $1.25, Ph $1.25. PB 101412

1. Sodium sulfides - Uses - Sweden 2. Lignin, Water soluble - Sweden 3. Wood - Distillation products - Sweden 4. Hydrogen sulfide - Uses - Sweden 5. Vanillyl alcohol - Sweden. 6. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 42.

Aus der Holzchemischen Abteilung des Schwedischen Instituts für Holzforschung. Särtryck ur Svensk Paperstidning 52 (1949), nr. 8, s. 183. Abstracts in English and Swedish.

REPORTS OF THE FOREST PRODUCTS RESEARCH BOARD, WITH THE REPORTS OF THE DIRECTOR OF FOREST PRODUCTS RESEARCH FOR THE YEARS 1939-1947. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research Board. 1950. 115p photos, drawing, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N.Y. $.90. PB 101448

A brief review of the activities during the period 1939-1945 followed by a reference to proposals made for the post-war development of the laboratory. The research covers home grown timber, laminated wood adhesives, wood bending, timber mechanics, wood preservation, seasoning, entomology, wood chemistry, etc. S.O. Code no. 47-74-0-47.

SWELLING OF WOOD UNDER STRESS; DISCUSSION OF ITS HYDROSCOPIC, ELASTIC AND PLASTIC PROPERTIES, by W. W. Barkas. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research Laboratory, Aylesbury, Eng. Jan 1949. 109p photos, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.40. PB 101471

This book is based on a series of lectures given by the author in Sweden during March 1948. A descriptive account is given of the fundamental work done between 1940 and 1948 at the Laboratory on the thermodynamics of the swelling of gels, and particularly wood, wood fibers, and paper. The lectures outline the hypothesis of swelling stresses and the methods of calculating elastic constants of gels from swelling data and then go on to discuss the application of thermodynamics to the phenomenon of sorption hysteresis and to the stresses set up in plastic swelling materials. Based on a course of lectures given at Svenska Träforskningsinstitutet, Stockholm, Sweden. Mar 1948. S.O. Code no. 47-152*.

ÜBER DIE URSACHE DER FARBREAKTIONEN DES HOLZES. (ON THE CAUSE OF COLOR REACTIONS OF WOODS), av E. Adler, K. J. Björkqvist och S. Häggroth. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. 1948. 8p (Text in Swedish) Mi $1.25, Ph $1.25. PB 101415

1. Wood - Lignin content - Sweden 2. Wood - Distillation products - Sweden 3. Vanillin - Production - Sweden 4. Acetaldehyde - Production - Sweden 5. Lignin products (Chemical) - Sweden 6. Lignosulfonic acids - Production - Sweden 7. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 43.

Contains also: (1) Coniferylaldehydgruppen im holz und in isolierten ligninpräparaten. (Aldehydes in coniferous woods and in the isolation of lignin preparations), av E. Adler och L. Ellmer. 1948. (2) Über die bildung von vanillin und acetaldehyd aus lignin und lignosulfonsäure mittels alkali. (On the formation of vanillin and acetaldehyde from lignin and lignin sulfonic acid by means of alkali), av E. Adler och S. Haggroth. 1949. Särtryck ur Acta Chemica Scandinavica 2 (1948) 93-94: 839-840: and Acta Chemica Scandinavica 3 (1949) 86-88. Cover date is 1949.

USE OF TIMBER FOR BUILDING WORK IN SCOTLAND. Gt. Brit. Ministry of Works. 1950. 18p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 110006

1. Building materials - Scotland 2. Timber - Use in construction - Scotland 3. MOW EM 2.

S.O. Code no. 49-331.

MACHINERY

NON-DESTRUCTIVE TESTING OF BEARINGS BY MEANS OF ULTRASONIC RADIATION, by E. Czerlinsky. Sep 1943. 9f photos, diagrs, tables (Legends in German) Mi $1.25, Enl Pr $2.50. PB 101041

1. Bearings - Tests - Germany 2. Radiation, Ultrasonic - Germany 3. Ultrasonic testing - Germany 4. Gt. Brit. Ministry of Supply 5. Micro GDC 10/5159T 6. Micro BIOS FD 620/48, Frames 1-8 7. ZWB UM 1069 translation.

Abstract available as PB 101041s. 1p. Mi $1.25, Ph $1.25. Translation by Gt. Brit. Ministry of Supply. Original German text not available.

VERFAHREN ZUR ERMITTLUNG UND ERZIELUNG KLEINSTMÖGLICHER ÜBERTRAGUNGSFEHLER IM GELENKWELLEN MIT MEHREREN CARDENGELENKEN (METHOD FOR MINIMISING TRANSMISSION ERRORS IN CRANKSHAFTS WITH SEVERAL CARDAN JOINTS), by Bornemann. Rheinmetall-Borsig A. G., Unterlüss, Ger. 1945. 21f diagrs, graphs (Text in German) Mi $2.00, Enl Pr $5.00. PB 101321

1. Crankshafts - Design - Germany 2. Shafts, Cardan - Germany 3. Micro BIOS FD 1804/46, Frames 160-178.

Abstract available as PB 101321s. 2p. Mi $1.25, Ph $1.25.

MEDICAL RESEARCH AND PRACTICE

BLOOD CLOTTING TIME IN RABBITS AND ITS VARIATIONS DETERMINED WITH A SIMPLE CAPILLARY METHOD, by Joseph Pichotka and Hans Reichel. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. May 1950. 9p graphs, tables Mi $1.25, Ph $1.25. PB 110449

A simple modification of the capillary method is described. The normal clothing time was 200 $\pm$2 seconds. The described method is adequate for the investigation of rapid changes in clothing time which occur after the use of anticoagulants. Table and graphs are given. Bibliography is attached. AAF SAM Proj. 21-02-079, Report no. 3.

EFFECT OF BETA RADIATION ON NUCLEIC ACID SYNTHESIS IN LARVAE OF DROSOPHILA MELANOGASTER, by Joey M. Pirrung, Charles C. Hassett. U. S. Chemical Corps. Medical Division. Army Chemical Center, Md. Mar 1950. 12p graphs Mi $1.75, Ph $2.50. PB 100921

It was found that beta radiation has little or no effect on the synthesis of ribonucleic acid in the developing larva, but that desoxyribonucleic acid formation is inhibited by radiation amounting to 5 microcuries or more. Graphs and bibliography included. CMLEM-52. Publication control no. 5030-240. Project no. 4-65-02-01. Test Program no. :T5. CC MD RR 3.

EFFECT OF CARROT FEEDING AND STARVATION ON THE RESISTANCE OF THE RAT TO HYPOXIA, BY CHARLES W. CRAVEN. U. S. ARMY AIR FORCES. SCHOOL OF AVIATION MEDICINE, RANDOLPH FIELD, TEX. PROJECT NO. 21-02-139.

Mar 1950. 11p graphs, tables Mi $1.75, Ph $2.50. PB 100998
The object was to clarify the relationship of an exclusive carrot diet and the resistance of the rat to hypoxia. Experimental data is given followed by a discussion. Summary and conclusions are included, as well as bibliography, tables, and graphs. AAF SAM Project 21-02-139.

EMPIRICAL STUDY OF RESTRICTION RANGE. ESTIMATION OF PARAMETERS IN A TRUNCATED TRIVARIATE NORMAL DISTRIBUTION, by D. F. Votaw, Jr., J. A. Rafferty, W. L. Deemer. U. S. Air Force. School of Aviation Medicine. Dept. of Biometrics, Randolph Field, Tex. Apr 1950. 9p tables Mi $1.25, Ph $1.25. PB 110446
1. Medicine, Aviation - Statistics 2. Pilots, Air - Ability tests - Statistical methods 3. Mathematics, Applied - Aero-medicine 4. Biometry 5. AAF SAM Proj 21-02-021, Report no. 2.

EPIDEMICS IN SCHOOLS, AN ANALYSIS OF THE DATA COLLECTED DURING THE YEARS 1935 TO 1939, by E. A. Cheeseman. Gt. Brit. Medical Research Council. 1950. 105p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.75. PB 101244
1. Epidemiology - Gt. Brit. 2. MRC SR 271.

PHYSIOLOGICAL EFFECTS OF REFLECTIVE, COLORED, AND POLARIZING OPHTHALMIC FILTERS. II: EFFECT OF OPHTHALMIC FILTERS ON COLOR VISION, by H. W. Rose and I. Schmidt. 2nd printing. U. S. Army Air Forces. School of Aviation Medicine, Randolph Field, Tex. Mar 1950. 30p graphs, tables Mi $2.00, Ph $3.75. PB 110000
A selection of colored and grey filters for goggles and sunglasses was tested on color normal and color deficient individuals. Methods, results and discussion are given. Bibliography, tables and graphs attached. Replaces previous issue distributed Nov 1949. AAF SAM Project 21-02-040. Report no. 2.

REPORT OF METABOLISM OF DOGS DURING AGENE TOXICITY, by E.P. Monahan and G. G. Lalanne. Medical Nutrition Laboratory, Chicago, Ill. May 1949. 9p tables Mi $1.25, Ph $1.25. PB 100990
An increase in circulating serum acetylcholine and a decrease in serum cholinesterace were the only significant changes found during periods when animals were suffering from agene toxicity. Tables and bibliography attached. Project MNL-13, phase no. 3. CMR MN 49.

RESULTS OF GERMAN CARIES RESEARCH DURING 1939-44, by Ewald Harndt. U. S. Field Information Agency, Technical. Jul 1949. 14p Mi $1.75, Ph $2.50. PB 97914
1. Teeth - Caries - Research - Germany 2. FIAT FR 1247.

SPLITTING OF FLUOROACETATE ESTERS BY PLASMA, by Bernard P. McNamara, Dorothy E. Stabile, Edmund F. Murtha, J. Henry Wills. U. S. Chemical Corps. Medical Division. Army Chemical Center, Md. Mar 1950. 10p tables Mi $1.25, Ph $1.25. PB 100920
The plasmas of rabbits, dogs, cats, guinea pigs, horses, men, and monkeys contain substances capable of splitting methyl, ethyl, propyl or butyl fluoroacetate. However, they do not hydrolyze ethyl, propyl, or butyl acetate, nor will they split

fluoropropyl acetate or ethyl cyanoacetate. The fluoroacetate-splitting activity of the plasma is inhibited by heat. Tables and bibliography included. CMLEM-52. Publication control no. 5030-239. Project no. 4-61-14-02. Test Program no. :T2. CC MD RR 2.

STUDIES ON MICROORGANISMS OF THE UPPER ATMOSPHERE: IV. SELECTION OF CULTURE MEDIA FOR INVESTIGATION OF AIR-BORNE MICROORGANISMS, by Dorothy T. Anderson, Roland B. Mitchell, Harry W. Dorris, Jr., Durward E. Timmons. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. May 1950. 7p tables Mi $1.25, Ph $1.25. PB 101200

A comparative study of five culture media for bacteria and actinomycates and five culture media for filamentous fungi has been made to determine which were most adequate for quantitative and qualitative determinations of microorganisms found in extramural air. Microbiological analyses have been made of extramural air samples obtained at ground level and at altitude. Sodium albuminate agar has been selected for determinations of total microorganism, dye-tolerant microorganism, actinomycete and aerobic bacillus spore counts. The M-A agar has been selected for counting the filamentous fungi. Tables and bibliography attached. For pt. I see PB 99415; for pt. II see PB 99416; for pt. III see PB 99417. AAF SAM Project no. 21-02-118 Report no. 4.

SURVEY OF HUMAN ADJUSTMENT PROBLEMS IN THE NORTHERN LATITUDES: INFLUENCE OF GEOGRAPHICAL BACKGROUND ON THE ADJUSTIVE-NON-ADJUSTIVE BEHAVIOR OF INFANTRYMEN ASSIGNED TO ALASKA, by Anthony Debons. U. S. Air Force. Arctic Aeromedical Laboratory, Ladd Air Force Base, Alaska. Apr 1950. 8p map, tables Mi $1.25, Ph $1.25. PB 110445

It was found that the men from the South are significantly more depressed than those from the North, although the latter group expresses disposition changes indicative of increased frustration. Both groups (North & South) are similar in experiencing increased tension, lack of sociability, insomnia, and feelings of increased aggression. For Part I see PB 110444. AAF AAL Proj. 21-01-022 Part II, Program E.

METALS AND METAL PRODUCTS

ABHÄNGIGKEIT DER ELASTISCHEN DEHNUNGSZAHL DES KUPFERS VON DER VORBEHANDLUNG. (DEPENDENCE OF THE ELASTIC STRAIN COEFFICIENT OF COPPER ON THE PRE-TREATMENT), by W. Kuntze. Aug 1950. 18p graphs, table Mi $1.75, Ph $2.50. PB 101425

The effect of various pre-treatments on the elastic strain coefficient α (defined as the reciprocal of the modulus of elasticity E) and on the mechanical hysteresis of copper has been investigated. Variables comprising the pre-treatments were pre-straining by stretching in a tensile testing machine and by drawing through a die, aging at room and elevated temperatures and annealing. The variation of the elastic strain coefficient with test stress was also investigated. Translation from Zeitschrift für metallkunde, jahrg. 20 heft 4, 1928, pp. 145-150. NACA TM 1287.

AIRCRAFT MATERIAL SPECIFICATION: BRASS TUBES (SUITABLE FOR LOW PRESSURE BY HYDRAULIC AND SIMILAR SYSTEMS). Gt. Brit. Ministry of Supply.

Mar 1950. 3p drawings, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.05. PB 101240

1. Tubes, Brass - Specifications - Gt. Brit. 2. Aircraft - Materials - Specifications - Gt. Brit. 3. MS DTD MS 604.

D.T.D. 604, Feb 1944, reprinted Mar 1950 incorporating amendment no. 1.

CONTRIBUTION OF RISER AND CHILL-EDGE EFFECTS TO THE SOUNDNESS OF CAST STEEL PLATES, by H. F. Bishop and W. S. Pellini. U. S. Naval Research Laboratory. Apr 1950. 21p diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.75. PB 101392

The size of cast steel plates which can be made radiographically sound without recourse to padding or chills has been determined for various riser and chill-edge conditions. Temperature measurements were also made in plate sections in order to relate casting soundness to thermal gradients. It was found that, for steels containing 0.20 to 0.35 percent carbon, the largest plate section having a width-to-thickness ratio of 3 to 1 (or greater) which can be made sound with a single riser is one for which the distance from the perimeter of the riser to the edge of the casting is equal to 4 1/2 times the casting thickness. These findings apply to plates fed by risers having diameters equal to, or greater than, three times the casting thickness. NRL R 3647.

ELECTRO-TECHNICAL INSULATING MATERIALS. Verband Deutscher Elektrotekniker, Berlin. 1937. 319f photos, diagrs, graphs (Text in German) Mi $9.00, Enl Pr $42.50. PB 101297

1. Insulating materials - Germany 2. Micro BIOS FD 986/48, Frames 1-309.

Lectures delivered at Technische Hochschule, Berlin, Jan-Mar 1937.

EXPERIMENTS RELATING TO THE PENETRATION DEPTH IN SUPERCONDUCTORS, by M. C. Steele. U. S. Naval Research Laboratory. Apr 1950. 13p photos, graph, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.50. PB 101422

Experiments have been performed to study the penetration depth in superconducting mercury, lead, and tin. Details of the preparation of colloidal specimens and the measurement of magnetic susceptibility are presented. Using relations derived from the London theory the observations are related to the penetration depth. The results for mercury and tin are discussed qualitatively. In conclusion the limitations of the colloid method for studying penetration depth are presented. NRL R 3656.

GEFÜGEPRÜFUNG GEGOSSENER HARTMETALLKERNE (EXAMINATION OF THE STRUCTURE OF CAST HARD METAL CORES). Studiengesellschaft Hartmetall, Berlin. Oct 1941. 10f photos, (Text in German) Mi $1.25, Enl Pr $2.50. PB 100970

1. Cores, Hard cemented carbide - Germany 2. BIOS FR 925 LD 3. Micro BIOS HEC 11342 4. Micro BIOS FD 3901/47, Frames 6-13.

Abstract available as PB 100970s. 1p. Mi $1.25, Ph $1.25. Listed in BIOS FR 925 appx. I, p. 33.

GOLD AND SILVER IN JAPAN, by Robert Y. Grant. Supreme Commander for the Allied Powers. Nautral Resources Section. Jun 1950. 132p photos, maps, graphs,

tables Mi $5.50, Ph $17.50. PB 101153

The report covers the production, mining, and milling of gold-bearing ores in Japan, with a section on geology and ore deposits. Metallurgical recovery, except insofar as the term applies to cyanide plants which have reduced cyanide precipitates to dore bullion , is beyond the scope of the study. This will be the subject of a subsequent report. SCAP NRS 128.

INVESTIGATION OF PROPERTIES OF AISI TYPE 310B ALLOY SHEET AT HIGH TEMPERATURES, by E. E. Reynolds, J. W. Freeman, and A. E. White. U. S. National Advisory Committee for Aeronautics. Aug 1950. 32p photos, graphs, tables Mi $2.25, Ph $5.00. PB 101360

Tensile and rupture tests were made on AISI Type 310B alloy (25 percent chromium, 20 percent nickel, and 2 percent silicon) to determine whether service at 1700° to 1800° F would cause further loss of ductility resulting in brittleness at 1300° to 1400° F. Three heats were used to evaluate heat-to-heat reproducibility and relative effects of annealing, cold-working, and hot-rolling initial treatments. NACA TN 2162.

RESEARCH ON SURFACE PROPERTIES OF FINE PARTICLES. SEMI-FINAL REPORT, PROJECT NO. 143-68, by J. M. Dallavalle and Clyde Orr, Jr. Georgia Institute of Technology. State Engineering Experiment Station, Atlanta, Ga. Apr 1950. 127p photo, diagrs, drawings, graphs, tables Mi $5.00, Ph $16.25. PB 101027

1. Particles - Absorptive properties 2. Materials - Absorptive properties 3. Metals - Absorptive properties 4. Surfaces - Absorptive properties 5. SIG Contract W36-039-sc-38258.

Department of the Army Project 3199-15-022. Signal Corps Project 32-15B-O.

SELECTING THE RIGHT STEEL FOR THE JOB. U. S. Bureau of Ships. May 1950. 10p photos, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.25. PB 101366

1. Steel - Properties 2. Steel alloys - Properties 3. NAVSHIPS IN 105.

SHORT STUDY OF METALLURGICAL PRACTICES IN JAPAN, by Estanislao P. Angeles. Philippine Islands (Commonwealth). Philippine Mission in Japan. 1949-1950. 116p fold. diagrs, fold. drawings, fold. tables Mi $4.75, Ph $15.00. PB 110097

1. Iron - Manufacture - Japan 2. Steel - Manufacture - Japan 3. Coal mines and mining - Japan 4. Kikuchi process (Iron ore).

This paper is divided into two main parts, namely, (1) Blast furnace practice and (2) Electric furnace practice.

METEORALOGY AND CLIMATOLOGY

LUMINANCE OF THE HORIZON AND DARK ADAPTATION DURING METEOROLOGICAL VISIBILITY OBSERVATIONS, by H. W. Rose. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. Jul 1950. 8p diagrs Mi $1.25, Ph $1.25. PB 101502

The luminance to which the meteorological observer is exposed in his office and at the point of observation gives him insufficient dark adaptation to perform the visibility determination with the optimal sensitivity for that task. Tables and charts included. Formerly project number 21-02-144. AAF SAM Proj. 21-24-008, Report no. 1.

PHOTOMICROGRAPHIC INVESTIGATION OF SPONTANEOUS FREEZING TEMPERATURES OF SUPERCOOLED WATER DROPLETS, by Robert G. Dorsch and Paul T. Hacker. U. S. National Advisory Committee for Aeronautics. Jul 1950. 45p photos, graphs, tables Mi $2.50, Ph $6.25. PB 101390

Data obtained by a photomicrographic technique on the spontaneous freezing temperatures of supercooled water droplets of the size ordinarily found in the atmosphere are presented. The spontaneous freezing temperature was found to depend on droplet size. Frequency distribution curves of the spontaneous freezing temperatures observed for a given droplet size were obtained. NACA TN 2142.

MINERALS AND MINERAL PRODUCTS

BERICHT ÜBER DIE FACHTAGUNG "SILUMIN-GAMMA" AM 17. JULI 1941 IN FRANKFURT. (REPORT ON THE CONFERENCE ON "SILUMIN-GAMMA", JUL 17, 1941). Silumin Gesellschaft m.b.H., Frankfort, Ger. Jul 1941. 78f photos, diagrs, graphs, tables (Text in German) Mi $3.50, Enl Pr $11.25. PB 110156

1. Silumin-gamma - Germany 2. Micro BIOS FD 1171/49, Frames 1-77.

Abstract available as PB 110156s. 1p. Mi $1.25, Ph $1.25. Listed in BIOS FR 1861, p. 132.

CONCRETING IN COLD WEATHER. Gt. Brit. Ministry of Works. 1950. 7p photo, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.05. PB 110291

1. Concrete - Frost damage - Gt. Brit. 2. Concrete - Workability - Gt. Brit. 3. MOW AL 7.

FIRE CLAY RESOURCES OF JAPAN, by Donald E. Lee. Supreme Commander for the Allied Powers. Natural Resources Section. Jul 1950. 66p photos, maps (1 fold), tables Mi $3.00, Ph $8.75. PB 101443

This report covers geology and mining methods, production, costs, reserves, etc, prepared as the result of visits to more than 40 producing mines in Japan, where brief reconnaisance surveys were made. Additional valuable information was obtained from the various fire clay producing associations in the country. SCAP NRS 130.

FLOTATION PROCESS APPLIED TO POTASH MINERAL REFINING. EXTRACTION OF RUBIDIUM SALTS. ELECTRIC SEPARATION OF POTASH MINERAL COMPONENTS. BROMIDE-BROMATE MIXTURES. LABORATORY TESTING METHODS FOR POTASH MINERALS AND BY-PRODUCTS. Vereinigte Kaliwerke Salzdetfurth A. G., Bad Saldetfurth, Ger. 1933-1946. 110f diagrs, tables (Text in German and English) Mi $4.50, Enl Pr $15.00. PB 101015

1. Bromine compounds - Germany 2. Flotation agents - Germany 3. Potassium oxide - Germany 4. Potash - Refining - Germany 5. Rubindium - Preparation - Germany 6. Utinal V (Trade name) 7. Micro BIOS FD 5306/47, Frames 1-106.

Abstract available as PB 101015s. 4p. Mi $1.25, Ph $1.25. Listed in BIOS FR 1616, p. 145-146.

HERSTELLUNG VON OBERFLÄCHENSPIEGELN DURCH METALLVERDAMPFUNG IM HOCHVAKUUM (PRODUCTION OF SURFACE MIRRORS BY THE VAPORIZA-

TION OF METAL IN A HIGH VACUUM), by Grünewald and Eber. Germany. Heeresversuchstelle, Peenemünde. Apr 1942. 20f diagr (Text in German and English) Mi $1.75, Enl Pr $3.75. PB 101267

1. Mirrors, Aluminum - Germany 2. BIOS OR 23 LD 3. Micro BIOS FD 2056/49, Frames 1-12+11.

Abstract available as PB 101267s. 2p. Mi $1.25, Ph $1.25. Listed in BIOS OR 23, p. 191.

LOCKBOURNE NO. 2 - MODIFICATION MULTIPLE WHEEL STUDY. REPORT OF CONSTRUCTION. U. S. Army. Corps of Engineers. Ohio River Division. May 1949. 76p photos, diagrs, graphs, tables Available from U. S. Army. Corps of Engineers. Director Ohio River Division Laboratories, 5851 Mariemont Ave., Mariemont, Cincinnati 27, Ohio. $1.00. PB 101370

1. Landing fields - Surfaces - Traffic tests 2. Airports - Pavements - Tests 3. Soils, Subgrade 4. Cements - Tests 5. Concrete aggregates 6. Lockbourne Army Air Base, Columbus, Ohio.

Appendix A. Field and laboratory tests of natural subgrade. Appendix B. Physical properties of cement aggregate and concrete.

LÖSLICHKEIT VON WISMUT IN MAGNESIUM (SOLUBILITY OF BISMUTH IN MAGNESIUM), by H. Vosskühler. I. G. Farbenindustrie A. G., Bitterfeld, Ger. Jun 1943. 24f graphs, tables (Text in German and English) Mi $2.00, Enl Pr $5.00. PB 110182

1. Bismuth - Solubility - Germany 2. BIOS OR 23 LD 3. Micro BIOS HEC 13092 4. Micro BIOS FD 2027/49, Frames 1-12+11.

Abstract available as PB 110182s. 1p. Mi $1.25, Ph $1.25. Listed in BIOS OR 23, p. 92.

MANUFACTURE OF SYNTHETIC PRECIOUS STONES. I. G. Farbenindustrie A. G., Frankfort, Ger. n.d. 7f photos, diagr (Text in German) Mi $1.25, Enl Pr $2.50. PB 101342

1. Jewels, Synthetic - Manufacture - Germany 2. Micro BIOS FD 5130/47, Frames 1-6.

Abstract available as PB 101342s. 1p. Mi $1.25, Ph $1.25.

PARTICLE SIZE OF THE RAW MATERIAL AND ITS INFLUENCE ON THE COURSE OF GLASS FUSIONS, by Ake Frölich. Chalmers University of Technology, Gothenburg, Sweden. Institute for Silica Chemistry Research. 1949. 36p photos, diagrs, tables Mi $2.25, Ph $5.00. PB 101512

The paper deals with the influence of varying grain size in the batch on the technical smelting process. Primarily a Na-Ca-carbonate is formed, which slowly reacts with solid SiO_2 from the sand, forming silicates and Co_2, which forms gas bubbles, the size of which vary with reaction stage and the viscosity of the melt. It was found that a grain size of about 0.2 mm is the best in most cases. Variations in grain size of the sand affect the smelting process more than variations in the grain sizes of soda or limestone although a particularly coarse grained limestone might cause difficulties. Acta Polytechnica no. 51.

PERMEABILITY OF GLASS TO INFRA-RED, by (Herr) Brandt. 1945. 53f graphs, tables (Text in German) Mi $2.75, Enl Pr $8.75. PB 100082

1. Glass - Infra-red transmission - Germany 2. Glass, Silicate - Research - Germany 3. Glass, Titanium - Research - Germany 4. Infrared - Permeability - Germany 5. Micro BIOS FD 923/48, Frames 1-52.
Inaug.-diss.-Breslau. Abstract available as PB 100082s. 1p. Mi $1.25, Ph $1.25.

QUESTION DRY VERSUS WET MATERIALS IN THE GLASS INDUSTRY, by Ake Frölich and J. Arvid Hedvall. Chalmers University of Technology, Gothenburg, Sweden. Institute for Silica Chemistry Research. 1949. 22p diagrs, graphs, tables Mi $2.00, Ph $3.75. PB 101513

The paper describes experiments on mixing sand, limestone, and soda with varying water contents. During mixing the water contents or sand or limestone migrated to the soda. A water content of about 5 per cent in the batch facilitate the mixing process and counteracts separation. Higher percentages delay the mixing. Normal water content of the batch has very small influence on the smelting process. Acta polytechnica no. 52, 1949.

STUDY OF THE EFFECT OF VARIOUS BINDERS AND ADDITIVES ON THE HOT STRENGTH OF MOLDING SANDS, by Robert E. Morey and Carl G. Ackerlind. U. S. Naval Research Laboratory. Apr 1950. 22p graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.75. PB 101393

Basic information is given on the effect of various binders and additives on hot strength of synthetic molding sands in the range of 200°-2500°F. Clay binders produced relatively high hot strengths in comparison to other binders, especially in the pre-fusion range. Hot strength was found to increase with increases in both clay and water content in the range studied. Organic binders were studied both as single and as secondary binders in combination with western bentonite. Certain materials, called additives, were also studied. NRL R 3646.

ORDNANCE AND ACCESSORIES

DETERMINATION OF SHOCK ISOLATOR PERFORMANCE, by J. Paul Walsh and Ralph E. Blake. U. S. Naval Research Laboratory. Jan 1950. 19p photos, drawings, graphs Mi $1.75, Ph $2.50. PB 101170

A method of determining the performance of shock mounts is described. The criterion of performance is the shock spectrum of the motion of the rigid load on the mount, since this is related to the likelihood of damage to almost all equipments and since the prevention of damage is the function of a shock mount. The standard Navy Shock Machine motions are used. Results are presented for some typical mounts obtained using this method and a comparison is made between mount characteristics determined using rigid test load and those expected if load were flexible. NRL B 3596.

HUGONIOT CALCULATIONS FOR SEA WATER AT THE SHOCK FRONT, by A. B. Arons and R. R. Halverson. U. S. Office of Scientific Research and Development. Feb 1946. 17p graphs, tables Mi $1.75, Ph $2.50. PB 101208
1. Explosions, Underwater - Shock waves 2. Hugoniot curve 3. NDRC A-649 4. OSRD 6577.

Navy Dept Project NO-223. Progress report under contract OEMsr-569 with the Woods Hole Oceanographic Institution. Preparation of this report was completed as part of Task A assigned under contract NOrd-9500 between the Bureau of Ordnance and the Woods Hole Oceanographic Institution.

KORROSIONSVERSUCHE MIT VERSCHIEDEN VORBEHANDELTEN SINTEREISEN-GESCHOSSEN (CORROSION TESTS ON SURFACE-TREATED SINTERED IRON PROJECTILES), by Dr. W. Baumann. Vereinigte Deutsche Metallwerke, Ettlingen Baden, Ger. Nov 1944. 2f (Text in German) Mi $1.25, Enl Pr $1.50. PB 110204
1. Projectiles - Corrosion tests - Germany 2. Micro BIOS FD 3535/48, Frame 1.
Abstract available as PB 110204s. 1p. Mi $1.25, Ph $1.25.

OUTLINE OF THE HISTORY AND REVISION OF 25-INCH ORDNANCE SURVEY PLANS, by J.C.T. Willis. Gt. Brit. Ordnance Survey Office. 1932. 27p fold. col. diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 101204
1. Surveying, Geographical - Gt. Brit.
Reprinted 1950. Color in diagrs will not reproduce. S.O. Code no. 62-1023.

STABILITÄTSUNTERSUCHUNGEN AN VERSCHIEDENEN FORMEN DES NORMAL - PPG. (STABILITY TESTS ON SEVERAL PPG PROJECTILES), by Herr Lehnert. Germany. Heeresversuchsstelle, Peenemünde. Jun 1943. 30f drawings, tables (Text in German) Mi $2.00, Enl Pr $5.00. PB 101515
1. Projectiles - Wind tunnel tests - Germany 2. Ballistics - Tests - Germany 3. PPG (Projectiles).
Abstract in English. Archiv 66/118. Frames are numbered 1-24. This report listed in Section A of Report on Scientific Establishments, by Brigadier General Leslie E. Simon, no. 118. This report will not reproduce well.

SUPERSONIC DIFFUSERS FOR WIND TUNNELS, by E. P. Neumann and F. Lustwerk. Massachusetts Institute of Technology. Gas Turbine Laboratory. Nov 1947. 13p photos, diagrs, graphs, table Mi $1.75, Ph $2.50. PB 100385
Investigations were conducted on a small-scale apparatus to obtain information to aid in the design of an efficient diffuser for a wind tunnel and of diffusers for air intakes on missiles or aircraft traveling at supersonic speeds. For Mach number range of 1.8 to 4.2, separation of the stream from the tube wall was always induced by the shock, with the separation region being from 8 to 12 tube diameters in length. The most efficient diffuser tested consisted of a contraction to a minimum starting area followed by a constant-area tube 10 diameters long. Massachusetts Institute of Technology. Guided missiles Program. Meteor report no. 13. Operating under Bureau of Ordnance Contract NOrd-9661 with the Division of Industrial Cooperation on Technical Tasks for the Bureau of Ordnance and the Bureau of Aeronautics of the Navy Department.

UNTERSUCHUNG DER SEITENSTABILITÄT EINER GLEITBOMBE MIT EINER AUTOMATISCHEN STEUERUNG OHNE VOREILUNG. (INVESTIGATIONS OF LATERAL STABILITY OF A GLIDE BOMB USING AUTOMATIC CONTROL HAVING NO TIME LAG), by E. W. Sponder. Aug 1950. 54p drawings, graphs, tables Mi $2.75, Ph $7.50. PB 101423
The lateral stability of an automatically-controlled glide bomb as a function of the variable values of the automatic pilot and the control is investigated. In addition,

with simplifying assumptions, the influence of the phugoid oscillations on the lateral stability is taken into account. A comparison of flight test results with the results of the calculation is presented. Translation from Zentrale für wissenschaftliches berichtswesen der luftfahrtforschung des generalluftzeugmeisters Berlin-Adlershof, Forschungsbericht nr. 1819, May 1943. NACA TM 1248.

ZUR FRAGE DER KNÜPPELNORDNUNG (CONTROL STICK COORDINATION), by (Herr) Deuke. n.d. 14f diagr, graphs (Text in German) Mi $1.75, Enl Pr $3.75. PB 110215

1. Missiles, Guided - Controls - Germany.
Abstract in English. Page 1 of German text is illegible.

PAPER AND ALLIED PRODUCTS

CONTROL OF MICROORGANISMS IN PULP AND PAPER MILLS. II. SORPTION OF PHENYLMERCURIC IONS ON FIBRES, by Stig O. Pehrson and Nils J. Lindberg. Svenska. Träforskningsinstitutet. Träkemi och Pappersteknik. 1948. 8p photo, graph, tables Mi $1.25, Ph $1.25. PB 101410

It is the purpose of this paper to report preliminary experiments dealing with the sorption of phenylmercuric ions on fibres with special regard to conditions existing in practice. Contribution from the Swedish Forest Products Laboratory - Paper Technology Department. Särtryck ur Svensk Papperstidning Vol. 51 (1938) no. 19:439-446. Abstract in Swedish and German. Svenska Träforskingsinstitutet. Trakemi och Pappersteknit. Meddelande 40.

PERSONNEL APTITUDE TESTING

ANALYSIS OF TRAINING CRITERIA FOR THE NAVIGATOR-BOMBARDIER, by Moncrieff H. Smith, Jr. and W. F. Long. U. S. Air Force. Human Resources Research Center, Lackland Air Force Base, San Antonio, Texas. Jan 1950. 14p tables Mi $1.75, Ph $2.50. PB 101194

1. Bombardiers - Training 2. Navigators - Training.
Project no. 21-06-001. Research Bulletin 50-2, Jan 1950. Directorate of Bombardment Observer-Navigator Training Research. Detachment no. 2. Human Resources Research Center, Air Training Command, Mather Air Force Base, Mather Field, Cal.

PERSONNEL SELECTION AND CLASSIFICATION PROCEDURES: PERCEPTUAL TESTS, A FACTORIAL ANALYSIS, by Merrill F. Roff. U. S. Army Air Forces. School of Aviation Medicine, Randolph Field, Tex. Apr 1950. 24p tables Mi $2.00, Ph $3.75. PB 110001

1. Perception - Tests 2. AAF SAM Project 21-02-009.

PERSONNEL SELECTION AND CLASSIFICATION PROCEDURES: PSYCHOMOTOR TESTS. THE USAF SAM DIRECTION CONTROL TEST, MODEL A, by Robert B. Payne. U. S. Army Air Forces. School of Aviation Medicine, Randolph Field, Texas. Apr 1950. 13p photo, diagrs, tables Mi $1.75, Ph $2.50. PB 100999

1. Psychomotor tests 2. AAF SAM Project 21-02-011 Report no. 1, test no. 3.

PHYSICS

General

AERODYNAMIC SIMILARITY AT AXISYMMETRIC TRANSONIC FLOW AROUND SLENDER BODIES, by Klaus Oswatitsch and Sune B. Berndt. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. May 1950. 10p diagr, graphs Mi $1.25, Ph $1.25. PB 101397

The form of these laws is such that the pressure distributions for bodies with affined relative thickness and free-stream mach number values are not similar, but are obtained from one another by transformation by means of a formula containing the second order derivative of the variable cross-section area along the body. Application to slightly supersonic flow around slender cones shows good agreement with exact theory. KTH AERO TN 15.

LAMINAR-BOUNDARY-LAYER HEAT-TRANSFER CHARACTERISTICS OF A BODY OF REVOLUTION WITH A PRESSURE GRADIENT AT SUPERSONIC SPEEDS, by William R. Wimbrow and Richard Scherrer. U. S. National Advisory Committee for Aeronautics. Aug 1950. 21p photo, drawing, graphs Mi $2.00, Ph $3.75. PB 101373

Local rates of heat transfer have been measured on a pointed body of revolution generated by rotating a segment of a parabola. Data were obtained with a laminar boundary layer at Mach numbers of 1.49 and 2.18. The results indicate that the heat-transfer characteristics of the test body can be predicted by employing the theoretical relationship between Nusselt number and Reynolds number for conical bodies. NACA TN 2148.

SIMPLIFICATION OF THE MATHEMATICAL TREATMENT OF PHOTOGRAMMETRICAL PROBLEMS BY OVER-DETERMINATION, by Walther Lohmann. 1946. 146f drawings Mi $5.75, Enl Pr $20.00. PB 101339

1. Photogrammetry - Germany 2. Mathematics - Statistical theory - Germany 3. Micro BIOS FD 1882/49, Frames 1-142.

Abstract available as PB 101339s. 1p. Mi $1.25, Ph $1.25.

SUR UN PHENOMENE DE DEVIATION DES VEINES FLUIDS ET SES APPLICATIONS. EFFET COANDA. (METHOD OF INCREASING FLUID STREAM BY DIVERTING IT FROM ITS AXIS OF FLOW. COANDA EFFECT), by A. R. Metral. 1939. 59p photos, diagrs, graphs Mi $2.75, Ph $7.50. PB 101207

1. Flow - Theory - France 2. AAF T-2 T/823.

Translation date October 1946. Release date Feb 1948.

PSYCHOLOGY

APPLICATION OF ELECTRO-PHYSIOLOGICAL TECHNIQUES TO HUMAN PERFORMANCE: THE READING ASSESSOR, THE ALERTNESS INDICATOR (PHYSIOLOGICAL STUDIES OF TRAINING TECHNIQUES), by C. S. Rhoads. U. S. Office of Naval

Research. Special Devices Center, Port Washington, N. Y. Apr 1950. 51p photos, graphs (1 fold) Mi $2.75, Ph $9.50. PB 110064
1. Brain - Electrophysiology 2. Performance tests 3. SDC TR 58-2-11.
SDC Human engineering Project 20-C-2&3. Contract N5ori-58 T.O. II Project designation NR 782-003. Research carried out at Tufts College, Institute for Applied Experimental Psychology.

COMPARISON OF THE VISUAL AND AUDITORY SENSES AS POSSIBLE CHANNELS FOR COMMUNICATION, by Paul G. Cheatham. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. May 1950. 31p Mi $2.25, Ph $5.00 PB 110278
1. Communications, Auditory 2. Communications, Visual 3. AAF TR 5919.
Submitted to the ASAF Air Materiel Command by the University of Virginia under Contract no. W33-038-ac-21269.

DECELERATOR FOR HUMAN EXPERIMENTATION, by E. C. Denzin. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Apr 1949. 77p photos, diagrs, drawings Mi $3.50, Ph $10.00. PB 100870
1. Airplanes - Speed - Physiological effects 2. Deceleration - Physiological effects 3. Northrop Hendy Company, Northrop Field, Hawthorn, Cal. 4. AAF TR 5973.
Contract (33-038) ac-15227. See also PB 100871.

DEVELOPMENT OF AN EVALUATION PROCEDURE FOR TRAINING AIDS AND DEVICES: PROBLEM, EVALUATION ON PROCEDURE, USE AND INTERPRETATION, DISCUSSION AND COMMENT. (HUMAN ENGINEERING SYNTHESIS OF BASIS INFORMATION), by Harold A. Edgerton and Douglas H. Fryer. Richardson, Bellows, Henry & Company, Inc. Jun 1950. 31p tables Mi $2.25, Ph $5.00. PB 101501
1. Training devices - Evaluation 2. SDC TR 383-2-1.
RBH Project 181. Research supplement I and Research Supplement II to this report are available on request to the Special Devices Center. Contract N7onr-38302.

ELECTROENCEPHALOGRAPHIC CHANGES OCCURING DURING NEGATIVE ACCELERATION (HEADWARD CENTRIFUGAL FORCE), by Capt. David G. Simmons and James P. Henry. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Chio. May 1950. 12p graphs Mi $1.75, Ph $2.50. PB 101195
A slow rhythm suggestive of cerebral dysfunction has been observed during electroencephalography of rabbits exposed to negative acceleration. Simultaneous recordings of electrocardiogram, electroencephalogram and respiration rhythm showed that these waves are probably of intracranial origin. When an acceleration was followed by these abnormal rhythms, the cerebral arterio-venous pressure differential had been severely depressed. These experiments confirm the theory that cerebral dysfunction occuring during negative acceleration can be due to cerebral hypoxia resulting from cardio-vascular failure. Diagrams included, bibliography attached. AAF TR 5966.

FACILITATION AND INTERFERENCE IN PERFORMANCE ON THE MODIFIED MASHBURN APPARATUS: I. THE EFFECTS OF VARYING THE AMOUNT OF ORIGINAL LEARNING (HUMAN ENGINEERING SYNTHESIS OF BASIC INFORMATION) REPORT PREPARED by Don Lewis, Dorothy E. McAllister, Jack A. Adams. U. S. Office of Naval Research. Special Devices Center, Port Washington, N. Y. n.d.

23p graphs, tables Mi $2.00, Ph $3.75. PB 101192

The investigation involving 143 male subjects in 12 experimental and 3 control groups showed that acquisition of skill in performing the reversed task on the apparatus, when preceded by the acquisition of skill in performing the standard task, resulted in a significant loss of skill on the standard task. The losses in skill were not fleeting in character but tended to persist through many relearning trials. Both positive and negative transfer effects were functioning during the various phases of learning and relearning. It is not yet known whether "susceptibility to interference" is a consistant trait which generalizes to different motor tasks. If it is, a general selection test could be employed; if it is not, then separate tests would have to be devised for different operating situations. Tables and graphs included. References attached. Begun under Contract N5ori-57 and completed under Contract N9onr-93801. For pt. 2 see PB 101193. SDC TR 938-1-1.

FACILITATION AND INTERFERENCE IN PERFORMANCE ON THE MODIFIED MASHBURN APPARATUS: II. THE EFFECTS OF VARYING THE AMOUNT OF INTERPOLATED LEARNING (HUMAN ENGINEERING SYNTHESIS OF BASIC INFORMATION) REPORT PREPARED by Don Lewis and Dorothy E. McAllister. U. S. Office of Naval Research. Special Devices Center, Port Washington, N. Y. n.d. 14p graphs, tables Mi $1.75, Ph $2.50. PB 101193

The general trend was for increases in the amount of interpolated learning (IL) to produce increasingly large decrements in number of matches as well as increasingly large increments in number of errors during the relearning trials. When drastic changes in design become necessary and the changes require responses which are opposite or antagonistic to responses already learned, the best procedure would be to select entirely new personnel to operate the gear. The next best procedure would be to utilize personnel familiar with the old gear but not to require them to operate it again. If the operation of both sets of gear by the same persons should be necessary, then training on both sets would have to be continued until the different procedures had become firmly established and errors of response did not occur. Tables and graphs included. References attached. Begun under Contract N5ori-57 and completed under Contract N9onr-93801. For pt. 1 see PB 101192. SDC 938-1-2.

HANDBOOK OF HUMAN ENGINEERING DATA FOR DESIGN ENGINEERS. Tufts College. Institute for Applied Experimental Psychology, Medford, Mass. Dec 1949. 370p drawings, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $5.00. PB 100814

1. Psychology, Applied 2. Personnel tests - Analysis 3. SDC TR 199-1-1 4. NAVEXOS P-643.

Project designation NR-783-001. Contract N6 ONR-199. T.O. 1. SDC Human Engineering Project 20-G-1.

ITEM ANALYSIS. VCL INTELLIGIBILITY TEST SERIES. (PHYCHOLOGICAL STUDIES OF TRAINING TECHNIQUES), by T. D. Hanley, assisted by M. Doyne, E. Kempf, G. L. Draegert, G. L. Shaffer and D. K. Wilson. Purdue University. Purdue Research Foundation, Lafayette, Ind. Apr 1950. 31p tables Mi $2.25, Ph $5.00. PB 101500

1. Speech - Intelligibility - Tests 2. Intelligibility 3. VCL (Voice Communication Laboratory, Waco, Texas) 4. U. S. Office of Naval Research. Special Devices Center, Port Washington, N. Y. 5. SDC TR 104-2-19.

SDC Human Engineering Project 20-K-1. Contract N6ori-104, T.O. II. Project Designation NR-782-003.

PRIOR LEARNING AS A FACTOR IN SHAPING PERFORMANCE CURVES (HUMAN ENGINEERING SYNTHESIS OF BASIC INFORMATION). REPORT PREPARED by Alfred H. Shephard and Don Lewis. Iowa State University, Iowa City, Iowa. Jul 1950. 9p photo, diagr, graphs Mi $1.25, Ph $1.25. PB 101487
1. Performance tests 2. Ability tests 3. SDC TR 938-1-4.
SDC Human Engineering Project 20-M-1e. Contract N9onr-93801. Project Designation NR-783-007.

RANGE EFFECT, by Douglas G. Ellson and Lawrence Wheeler, Jr. Indiana. University, Bloomington, Ind. May 1949. 10p diagrs, graph, table Mi $1.25, Ph $1.25. PB 101168

In tracking a point which moves with step-function displacements of varying amplitudes, it has been noted that subjects tend to overshoot displacements of small amplitude and undershoot those of large amplitude. Research reported here was designed to determine whether this phenomenon is a function of the range of stimuli presented or a function of the absolute magnitudes of the individual stimuli. Subjects tracked a spot which made step-function movements away from a center position. A one-inch amplitude stimulus was the largest in one range of three stimuli and the smallest in a second range. Each range was presented to a separate group of 25 subjects. Subjects tended to undershoot the one-inch stimulus when it was largest and to overshoot when it was smallest in a series. This tendency which contributes to non-linearity of operator responses in situations of the above type therefore is a function of range and not simply a result of the absolute magnitudes of the stimuli. Contract W-33-038-ac-13968. AAF TR 5813.

RESEARCHES ON THE MEASUREMENT OF HUMAN PERFORMANCE, by N. H. Mackworth. Gt. Brit. Medical Research Council. 1950. 157p photos, diagrs, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 101441
1. Performance tests - Gt. Brit. 2. Ability tests - Gt. Brit. 3. MRC SR 268.
S.O. Code no. 45-8-68*.

SURVEY OF HUMAN ADJUSTMENT PROBLEMS IN THE NORTHERN LATITUDES; MORALE SURVEY OF PERSONNEL ASSIGNED TO ELMENDORF AIR FORCE BASE, ALASKA, by Ernest L. McCullum. U. S. Air Force. Arctic Aeromedical Laboratory, Ladd Air Force Base, Alaska. May 1950. 45p Mi $2.50, Ph $6.25. PB 101198

Thirty-five percent of those airmen questioned planned to re-enlist. a. The most disturbing elements of the military environment encompassed by this study appeared to be (1) problems arising from the separation of married men from their families, (2) lack of social contacts with members of the opposite sex, (3) lack of adequate transportation to and from recreational activities, and (4) lack of faith in the Air Force system of military law and justice. b. Aside from those married men whose worries centered around problems relating to their separation from their families, there was a sizeable group of airmen who displayed a pattern of maladjustment to the demands of the military framework. AAF AL Project 21-01-022 pt. 1-Program C.

SURVEY OF HUMAN ADJUSTMENT PROBLEMS IN THE NORTHERN LATITUDES; PERSONALITY PREDISPOSITIONS OF INFANTRYMEN AS RELATED TO THEIR MOTIVATION TO ENDURE TOUR IN ALASKA, A COMPARATIVE EVALUATION, by Anthony Debons. U. S. Air Force. Arctic Aeromedical Laboratory, Ladd Air

Force Base, Alaska. May 1950. 12p graph, tables Mi $1.75, Ph $2.50. PB 101197
The levels studied constituted the: (a) "more able" who, as a group, were considered to be adjusting favorably; (b) the "less able" group who were maladjusting; and (c) those who expressed "no change" in their ability to endure their tour, considered as non-adjusting. References, tables, and charts attached. AAF AAL Project 21-01-002 pt. III Program E.

SURVEY OF HUMAN ADJUSTMENT PROBLEMS IN THE NORTHERN LATITUDES: STUDY OF ADJUSTIVE, NON-ADJUSTIVE BEHAVIOR AS REFLECTED BY VARIATIONS OF SHIFTS IN DISPOSITION BY INFANTRYMEN ASSIGNED TO ALASKA, by Anthony Debons. U. S. Air Force. Arctic Aeromedical Laboratory, Ladd Air Force Base, Alaska. Apr 1950. 6p tables Mi $1.25, Ph $1.25. PB 110444
Two hundred and thirty (230) men were interrogated. The shift in disposition was found to be predominantly in the negative or unfavorable direction. As a whole, within the group there is a general dispositional trend of increased depression, dissatisfaction, insomnia and lack of motivation, symptomatic of non-adjustive behavior. For Part II see PB 110445. AAF AAL Proj. 21-01-022 Part I, Program E.

USE OF A PROJECTIVE DEVICE IN ATTITUDE SURVEYING, by Fillmore H. Sanford. Institute for Research in Human Relations, Washington, D. C. Jun 1950. 13p drawing, tables Mi $1.75, Ph $2.50. PB 110426
1. Psychological tests 2. Psychology, Applied 3. Leadership.
Series A, Report 5. Series A includes those technical papers which report on a study of Leadership Identification and Acceptance, a project conducted by the Institute for the Office of Naval Research.

RUBBER AND RUBBER PRODUCTS

ABBAU VON BUNA S KRÜMEL IM PLATTENBANDTROCKNER IM BAU 44 (DEGRADATION OF BUNA S CRUMBS IN THE TRAVELLING PLATE BELT DRYER IN PLANT 44), by Dr. Dennstedt. I. G. Farbenindustrie A. G., Schkopau, Ger. Oct 1938. 6f (Text in German) Mi $1.25, Enl Pr $2.50. PB 101567
1. Buna S (Trade name) 2. Rubber, Buna - Thermal softening - Germany 3. Schilde dryer - Germany 4. Micro BIOS FD 2886/48, Frames 1-5.
Abstract available as PB 101567s. 1p. Mi $1.25, Ph $1.25.

BUNA S WITHOUT LINOLEIC ACID, by Dr. Weinbrunner. I. G. Farbenindustrie A. G., Schkopau, Ger. Oct 1942. 10f table (Text in German) Mi $1.25, Enl Pr $2.50. PB 101345
1. Buna S (Trade name) 2. Rubber, Buna - Production - Germany 3. Micro BIOS FD 2397/47, Frames 1-9.
Abstract available as PB 101345s. 1p. Mi $1.25, Ph $1.25.

DEVELOPMENT OF TESTING METHODS FOR BUNA EVOLVED BY VARIOUS WORKING COMMITTEES. I. G. Farbenindustrie A. G., Schkopau, Ger. 1940-1943. 123f graphs, tables (Text in German) Mi $5.00, Enl Pr $17.50. PB 101520
1. Rubber, Buna - Tests - Germany 2. Rubber, Buna - Testing equipment - Germany 3. Micro BIOS FD 1158/49, Frames 1-119.
Abstract available as PB 101520s. 3p. Mi $1.25, Ph $1.25.

GRAPHS, NOTES AND PHOTOGRAPHS RELATING TO THE TESTING OF BUNA FOR THE PRODUCTION OF TIRES. I. G. Farbenindustrie A. G., Schkopau, Ger. 1940-1942. 120f photos, diagrs, graphs, tables (Text in German) Mi $4.75, Enl Pr $16.25. PB 101609

1. Rubber, Buna - Tests - Germany 2. Tires, Rubber - Synthetic - Tests - Germany 3. Micro BIOS FD 2413/47, Frames 1-118.

Abstract available as PB 101609s. 1p. Mi $1.25, Ph $1.25.

INFLUENCE OF THE CONCENTRATION OF HYDROGEN IONS DURING THE COAGULATION OF BUNA S LATEX (TYPE 1) ON THE BEHAVIOR OF BUNA S RUBBER IN THE PROCESSING STAGES. PHYSICO-CHEMICAL PHENOMENA IN THE DEGRADATION OF BUNA S, by Dr. Wenning. I. G. Farbenindustrie A. G., Schkopau, Ger. Jan 1944. 126f diagrs, tables (Text in German) Mi $5.00, Enl Pr $17.50. PB 101341

1. Buna S (Trade name) 2. Rubber, Buna - Degradation - Germany 3. Micro BIOS FD 1393/48, Frames 1-124.

Abstract available as PB 101341s. 1p. Mi $1.25, Ph $1.25. Reports no. 32 and 80 to the Scientific Rubber Conference July 31, 1944.

LUFTGUMMIRINGAR TILL LANTBRUKSVAGNAR. REDOGÖRELSE FÖR UNDERSÖKNING AV RULLNINGSMOTSTAND FÖR 16" OCH 20" LUFTGUMMIRINGAR. (PNEUMATIC TYRES FOR FARM VEHICLES. REPORT ON AN INVESTIGATION INTO THE ROLLING RESISTANCE OF 16" AND 20" PNEUMATIC TYRES), av Gustaf Aniansson och Olle Norén. Jordbrukstekniska Institutet, Ultuna, Uppsala, Sweden. Apr 1950. 92p photos, diagrs, graphs, tables (Text in Swedish) Mi $4.25, Ph $12.50. PB 110047

1. Tires, Pneumatic - Sweden 2. Agricultural machinery - Sweden 3. Jordbrukstekniska Institutet, Ultuna, Uppsala, Sweden. Meddelande no. 224.

Summary in English.

MEASURING THE WATER VAPOR DIFFUSION IN BUNA AND HARD RUBBER MIXTURES. METHOD FOR PRODUCING SOLUTIONS FOR THE CHLORINATION OF BUNA. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. Jun 1940. 314f photos, graphs, tables (Text in German) Mi $9.00, Enl Pr $43.50. PB 101285

1. Rubber, Buna - Chlorination - Germany 2. Rubber, Buna - Water vapor content - Germany 3. Water vapor - Measurements - Germany 4. Kauteko (Anwendungstechnische Kommission für Kautschuk) 5. Micro BIOS FD 3528/48, Frames 1-314.

Abstract available as PB 101285s. 2p. Mi $1.25, Ph $1.25. Other reports in these folders are FD 1294/48-1331/48. Reports to KAUKO June 15, 1940.

MESSUNG DES STYROLS IN DEN ABGASEN BEI DEM SCHILDETROCKNER (MEASURING OF STYRENE CONTAINED IN THE WASTE GAS EMANATING FROM THE SCHILDE DRYER), by Dr. Dennstedt. I. G. Farbenindustrie A. G., Schkopau, Ger. Oct 1938. 3f tables (Text in German) Mi $1.25, Enl Pr $1.50. PB 101566

1. Schilde dryer - Germany 2. Styrene - Recovery from Buna emulsions - Germany 3. Waste gases - Styrene content - Germany 4. Micro BIOS FD 2885/48, Frames 1-2.

Abstract available as PB 101566s. 1p. Mi $1.25, Ph $1.25.

MISCELLANEOUS PAPERS RELATING TO IGELIT PCU (P.V.C.). I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1944. 110f (Text in German) Mi $4.50, Enl Pr $15.00. PB 101344

1. Igelit PCU (Trade name) 2. Micro BIOS FD 2304/47, Frames 1-106.

Abstract available as PB 101344s. 2p. Mi $1.25, Ph $1.25.

DAS PHYSIOCHEMISCHE BILD DES ABBAU VON BUNA S (PHYSICO-CHEMICAL CHARACTERISTICS OF THE DEGRADATION OF BUNA S), by Dr. Wenning. I. G. Farbenindustrie A. G., Schkopau, Ger. Jan 1944. 22f graphs, tables (Text in German) Mi $2.00, Enl Pr $5.00. PB 101565

1. Buna S (Trade name) 2. Rubber, Buna - Thermal softening - Germany 3. Micro BIOS FD 2883/48, Frames 1-20.

Abstract available as PB 101565s. 2p. Mi $1.25, Ph $1.25.

REPORTS ON METHODS OF TESTING BUNA AND TYRES. I. G. Farbenindustrie A. G., Schkopau, Ger. 1942-1944. 162f photos, diagrs, graphs, tables (Text in German) Mi $6.25, Enl Pr $22.50. PB 101608

1. Rubber, Buna - Tests - Germany 2. Tires, Rubber - Synthetic - Tests - Germany 3. Micro BIOS FD 2411/47, Frames 1-160.

Abstract available as PB 101608s. 2p. Mi $1.25, Ph $1.25.

STABILIZER AND ANTI-AGEING MEDIUM "NDP", BY PANNWITZ. REPORT TO SCIENTIFIC RUBBER CONFERENCE, JUN 15, 1940. I. G. Farbenindustrie A. G., Schkopau, Ger. Jun 1940. 5f (Text in German) Mi $1.25, Enl Pr $1.50. PB 101554

1. NDP (Trade name) 2. Rubber - Anti oxidants - Germany 3. Rubber - Aging - Germany 4. Kauteko (Anwendungstechnische Kommission für Kautschuk) 5. Micro BIOS FD 1319/48, Frames 1-5.

Abstract available as PB 101554s. 1p. Mi $1.25, Ph $1.25.

TEST LABORATORY, SCIENTIFIC CORRESPONDENCE AND GRAPHS ON BUNA O AND BUNA S. I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1940. 73f graphs, tables (Text in German) Mi $3.50, Enl Pr $11.25. PB 101557

1. Buna O (Trade name) 2. Buna S (Trade name) 3. Rubber, Buna - Tests - Germany 4. Rubber, Buna - Polymers - Germany 5. Micro BIOS FD 2401/47, Frames 1-71.

Abstract available as PB 101557s. 1p. Mi $1.25, Ph $1.25.

TESTING METHODS FOR PLASTICS AND SOME CHARACTERISTICS OF BUNA. I. G. Farbenindustrie A. G., Schkopau, Ger. 1941-1944. 32f (Text in German) Mi $2.25, Enl Pr $6.25. PB 101605

1. Plastics - Tests - Germany 2. Rubber, Buna - Dielectric properties - Germany 3. Rubber, Buna - Elasticity - Germany 4. Micro BIOS FD 1160/49, Frames 1-30.

Abstract available as PB 101605s. 2p. Mi $1.25, Ph $1.25.

THERMO-PLASTICIZING AND DEGRADATION OF BUNA S STRIP. I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1941. 107f photos, graphs, tables (Text in German) Mi $4.50, Enl Pr $15.00. PB 101599

1. Buna S (Trade name) 2. Rubber, Buna - Deformation – Germany 3. Rubber, Buna - Degradation - Germany 4. Rubber, Buna - Thermal softening - Germany 5. Micro BIOS FD 2223/47, Frames 1-101.

Abstract available as PB 101599s. 2p. Mi $1.25, Ph $1.25. Includes 29-page report by Dr. Wolf on Permeability to air of Buna S strip and its influence on degradation during thermo-plasticizing with and without compressed air.

Aeronautics

Aircraft

ANALYSIS OF THE AUTOROTATIVE PERFORMANCE OF A HELICOPTER POWERED BY ROTOR-TIP JET UNITS, by Alfred Gessow. U. S. National Advisory Committee for Aeronautics. Jul 1950. 27p diagrs, graphs, tables Mi $2.00, Ph $3.75. PB 101354

A study of the autorotative performance of an assumed helicopter powered by jet units located at the rotor tips is presented. It is concluded that the power-off drag of tip jet units could cause a marked and perhaps dangerous increase in the minimum rate of descent of the helicopter unless steps are taken to reduce the power-off drag of the units. NACA TN 2154.

APPARATUS FOR VARYING EFFECTIVE DIHEDRAL IN FLIGHT WITH APPLICATION TO A STUDY OF TOLERABLE DIHEDRAL ON A CONVENTIONAL FIGHTER AIRPLANE, by William M. Kauffman, Charles J. Liddell, Jr., Allan Smith and Rudolph D. Van Dyke, Jr. U. S. National Advisory Committee for Aeronautics. 1949. 19p photo, drawings, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20. PB 101365

The results of brief flight tests of the apparatus on a conventional fighter airplane are presented and discussed. The apparatus is shown to have satisfactorily simulated a wide range of effective dihedral under static and dynamic conditions. NACA 948.

CALCULATION OF DOWNWASH BEHIND WINGS OF ARBITRARY PLAN FORM AT SUPERSONIC SPEEDS, by John C. Martin. U. S. National Advisory Committee for Aeronautics. Jul 1950. 42p photos, drawings, graphs Mi $2.25, Ph $6.25. PB 101389

A method based upon linearized supersonic flow theory is developed for the exact and approximate calculation of the velocity potential and downwash from thin wings of arbitrary plan form. The applicability of the method inherently depends upon a knowledge of the load distribution over the plan form of the wing. Simple modifications of the general expressions are used to produce formulas for the velocity potential and downwash from arbitrary curved lifting lines. Simple, approximate formulas are also determined for the downwash from the lifting lines. Applications include calculations of the downwash from a pitching rectangular wing and an expression for the local angle of attack necessary to give a specified load distribution. NACA TN 2135.

CHARTS FOR ESTIMATING DOWNWASH BEHIND RECTANGULAR, TRAPEZOIDAL, AND TRIANGULAR WINGS AT SUPERSONIC SPEEDS, by Rudolph C. Haefeli, Harold Mirels, and John L. Cummings. U. S. National Advisory Committee for Aeronautics. Aug 1950. 67p diagrs, graphs, tables Mi $3.00, Ph $8.75. PB 101356

Design charts are presented for estimating the downwash behind wings in a supersonic stream. The wing plan forms for which computations are made include rectangular, trapezoidal, and triangular wings. The charts are obtained on the basis of lifting-line theory. For each wing, charts of downwash near the wing, the downwash in the Trefftz plane, and the spanwise distribution of loading are presented. A procedure is indicated to correct for the displacement and the distortion of the trailing vortex sheet. The downwash behind wings with flaps is briefly considered. NACA TN 2141.

COLOR MARKINGS FOR AIRCRAFT OPERATING IN ARCTIC REGIONS, by Lawrence R. Wilcox and Walter F. Grether. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. May 1949. 22p col. photo, col. diagrs, table Mi $2.00, Ph $3.75. PB 101416

The results of 1500 observations of these silhouettes, made under controlled laboratory conditions, indicated that the best of those tested was a paint scheme wherein the entire surface of the aircraft aft of the mid-chord line of the wing is painted either international orange or insignia red, with the remaining surface in the natural aluminum finish. The work was initiated in compliance with Technical Instruction no. 2140, Addendum 129, and was carried out under Expenditure order no. 694-41. Color in photo and diagrams will not reproduce. AAF TR 5814.

COMBAT CRITERION IN NAVAL AVIATION, by John G. Jenkins, E. S. Ewart and J. B. Carroll. U. S. Bureau of Medicine and Surgery. Division of Aviation Medicine. Aviation Psychology Branch. Jan 1950. 447p fold. diagrs, tables Mi $9.00, Ph $56.25. PB 110002

The report presents the findings of one of the few comprehensive studies of the problem of combat proficiency undertaken during World War II. The findings have important implications for the measurement and prediction of combat effectiveness of military personnel. Tables are included and 20 appendixes are attached. NRC Committee on Aviation Psychology Report no. 6. Prepared under auspices of National Research Council, Committee on Aviation Psychology under Task order IX, Contract no. N7 onr-291.

DESCRIPTION OF AND CALCULATION METHOD FOR THE MIDDLE WIND TUNNEL OF THE F.K.F.S, by F. Koegel and H. Schweizer. Stuttgart. Technische Hochschule. Forschungsinstitut für Kraftfahrwesen und Fahrzugmotoren. Feb 1938. 40f photos, drawings, graph (Text in German) Mi $2.25, Enl Pr $6.25. PB 101268

1. Wind tunnels - Germany 2. FKFS 242 3. Micro BIOS FD 2169/48, Frames 146-182.

Abstract available as PB 101268s. 1p. Mi $1.25, Ph $1.25.

DEVELOPMENT OF CAMBERED AIRFOIL SECTIONS HAVING FAVORABLE LIFT CHARACTERISTICS AT SUPERCRITICAL MACH NUMBERS, by Donald J. Graham. U. S. National Advisory Committee for Aeronautics. 1949. 25p graphs, tables Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20. PB 101386

Several groups of new airfoil sections, designated as the NACA 8-series, are derived analytically to have lift characteristics at supercritical Mach numbers which are favorable in the sense that the abrupt loss of lift, characteristic of the usual airfoil section at Mach numbers above the critical, is avoided. NACA 947.

EXPERIMENTAL DETERMINATION OF PRESSURE DISTRIBUTIONS ON A PLANE WING WITH 40^{o} SWEEPBACK AT LOW SPEED, by A. Martin, M. Ingelmann-Sundberg. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. Nov 1947. 20p drawings, graphs, tables Mi $1.75, Ph $2.50. PB 100725

An experimental investigation was made of the pressure distributions around a plane tapered wing with 40^{o} sweepback, which in some of the tests had end plates at the wing tips. The wind speed was low subsonic corresponding to a Reynolds number of $1x10^{6}$ based on the centre section chord. Tests were made at various angles of yaw and over a large incidence range. The results are presented in the form of diagrams of the pressure distribution along the chord and curves of the local normal force coefficient, centre of pressure, and load distribution along the span. KTH AERO TN 8.

FLIGHT TESTS ON KING COBRA FZ.440 TO INVESTIGATE THE PRACTICAL REQUIREMENTS FOR THE ACHIEVEMENT OF LOW PROFILE DRAG COEFFICIENTS ON A LOW DRAG AEROFOIL, by F. Smith and D. J. Higton. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1945. 20p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 101261

This report describes measurements of profile drag made on the wing of the King Cobra aircraft, which has a low-drag profile of N.A.C.A. design. The profile drag was high with the original surface finish and although it was improved when the surface was polished the profile drag was still much too high for a low-drag aerofoil. By reduction of the surface waviness to $\pm$ one thousandth of an inch low drag coefficients of the order of 0.0028 were obtained. The report describes the technique used to reduce the waviness and also the effect of flies, dust, water, high Mach number and normal acceleration upon the low drag characteristics of the wing. Cover date is 1950. S.O. Code no. 23-2375. ARC RM 2375.

FURTHER WIND TUNNEL TESTS ON A 30 PER CENT. SYMMETRICAL SUCTION AEROFOIL WITH A MOVABLE FLAP, by N. Gregory and W. S. Walker. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jul 1946. 23p photos, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.15. PB 101247

1. Airfoils - Tests - Gt. Brit. 2. Wind tunnel - Tests - Gt. Brit. 3. ARC RM 2287

Cover date is 1950. S.O. Code no. 23-2287.

HARVARD 2 STANDARD AND ARMAMENT TRAINER. PART IV: LONGITUDINAL STABILITY AND HANDLING, by D. A. MacLulich. Canada. Royal Canadian Air Force. Experimental and Proving Establishment, Rockcliffe, Canada. Apr 1950. 14p diagr, graphs, tables Mi $1.75, Ph $2.50. PB 101196

1. Harvard 2 (Airplane) 2. Stability, Longitudinal - Canada 3. RCAF EPE 945.

RCAF development report, final D154-4. AMTS directive number 16/47 dated Dec 5, 1947.

INVESTIGATION OF BOUNDARY-LAYER CONTROL TO IMPROVE THE LIFT AND DRAG CHARACTERISTICS OF THE NACA 65_{2}-415 AIRFOIL SECTION WITH DOUBLE SLOTTED AND PLAIN FLAPS, by Elmer A. Horton, Stanley F. Racisz, and Nicholas J. Paradiso. U. S. National Advisory Committee for Aeronautics. Aug 1950. 60p photos, drawings, graphs, tables Mi $2.75, Ph $7.50. PB 101384

The investigation considered the effectiveness of two ways of using boundary-layer control to improve the lift and drag of the NACA 65_2-415 airfoil section and the effect of section lift-drag ratio on that of an airplane having a wing composed of these sections. The models were tested in the smooth and rough conditions at Reynolds numbers of 1.0×10^6, 2.2×10^6, and 6.0×10^6 with an 0.30-chord double slotted flap and a suction slot at 0.45 chord, and at Reynolds numbers of 1.0×10^6 and 2.2×10^6 with an 0.30-chord plain flap and a suction slot at 0.76 chord. Maximum lift data are presented for an extensive range of airfoil thickness ratios. NACA TN 2149.

LIFT-CANCELLATION TECHNIQUE IN LINEARIZED SUPERSONIC WING THEORY, by Harold Mirels. U. S. National Advisory Committee for Aeronautics. Aug 1950. 43p diagrs Mi $2.50, Ph $6.25. PB 101357

A lift cancellation technique is presented for determining load distributions on thin wings at supersonic speeds. A general expression is derived for the load distribution over a cancellation wing. The boundary conditions for either a subsonic leading edge or a subsonic trailing edge can be satisfied. Applications to swept wings having curvilinear plan forms and to wings having reentrant side edges are indicated. NACA TN 2145.

LOW-SPEED MODEL TESTS ON A "U" WING, by J. Trouncer and G. F. Moss. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jul 1945. 16p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.75. PB 101250

1. Wings - Tests - Gt. Brit. 2. Wings, Sweptback - Stability - Gt. Brit. 3. Gliders, Tailless - Models - Tests - Gt. Brit. 4. ARC RM 2295.

Cover date is 1950. S.O. Code no. 23-2295.

MEASUREMENTS OF SECTION CHARACTERISTICS OF A 45° SWEPT WING SPANNING A RECTANGULAR LOW-SPEED WIND TUNNEL AS AFFECTED BY THE TUNNEL WALLS, by Robert E. Dannenberg. U. S. National Advisory Committee for Aeronautics. Aug 1950. 35p photos, diagrs, graphs Mi $2.25, Ph $5.00. PB 101376

Two constant-chord wings that completely spanned a closed wind tunnel were investigated by pressure-distribution and wake measurements, and tuft observations. One wing was unswept and the other wing swept 45°. The experimental results indicate: (1) that the change in pressure distribution and in lift characteristics over the central half of the swept wing compared to that of the unswept wing was in accordance with simple sweep theory and (2) that the flow over a swept wing of infinite aspect ratio may be approximated by this method of mounting. Tunnel-wall corrections for the induced upwash velocity for a swept wing completely spanning a rectangular wind tunnel are included in the appendix. NACA TN 2160.

MODEL TESTS ON A HIGH-LIFT AIRCRAFT, FOLLAND E28/40, by A. S. Halliday, D. K. Cox and W. C. Skelton. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Apr 1943. 77p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.00. PB 101264

1. Airplanes - Lift - Gt. Brit. 2. Ailerons - Tests - Gt. Brit. 3. Airfoils - Slats - Gt. Brit. 4. Tail surfaces - Tests - Gt. Brit. 5. Folland E28/40 (Airplane) 6. ARC RM 2428.

Cover date is 1950. S.O. Code no. 23-2428. Contents: Part I. Tests on aileron. p. 1-29. Part II. Wind tunnel tests on the Folland E28/40 tailplane. p. 30-69. Part III. Measurements of resultant force on the slat of the Folland E.28/40. p. 70-77.

NEW FAMILY OF LOW DRAG WINGS WITH IMPROVED C_L-RANGES, by B. Thwaites. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Mar 1945. 29p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 101248

1. Airfoils - Drag - Gt. Brit. 2. Wings - Drag - Gt. Brit. 3. ARC RM 2292.

Cover date is 1950. S.O. Code no. 23-2292.

NOTE ON THE INTERFERENCE ON A PART-WING MOUNTED SYMMETRICALLY ON ONE WALL OF A WIND-TUNNEL OF OCTAGONAL SECTION, by H. C. Garner. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1950. 28p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101243

1. Ailerons - Wind tunnel tests - Gt. Brit. 2. ARC CP 5.

Fluid Motion Subcommittee. F.M. 1076 Mar 1947.

ON THE APPROXIMATE SOLUTION OF THE LIFTING SURFACE PROBLEM WITH THE AID OF DISCRETE VORTICES, by O. Holme. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. Mar 1949. 43p graphs, tables Mi $2.50, Ph $6.25. PB 100726

Various methods of solving the lifting surface problem with the aid of discrete vortices are investigated. As a result of the investigation two methods are devised for the calculation of the aerodynamic loading on wings having sweep-back or small aspect ratio. Both methods have been applied to a wing having 40^{o} sweepback, aspect ratio 4.5 and constant chord. Good agreement is found both between the results of the two methods and between the results of calculation and of experiments. KTH AERO TN 6.

ON THE THEORY OF FLUTTER AND AN ITERATIVE METHOD OF CALCULATING THE CRITICAL SPEED OF A WING, by Pentti Laasonen. Sweden. Kingl. Tekniska Högskolan. Institutionen för Flygteknik. 1950. 15p drawing, graphs Mi $1.75, Ph $2.50. PB 110441

An iterative method is proposed for the solution of the eigenvalue group. This method is an adaptation of the Engesser-Vianello method, generalized here for the solution of groups of differential equations. KTH AERO TN 11.

PROTECTION OF AIRCRAFT AGAINST MAGNESIUM FIRES. FINAL REPORT, PREPARED BY FACTORY MUTUAL RESEARCH CORPORATION. TESTS by, E. A. Blair, E. W. Cousins, Heston S. Hirst, C. F. Tuells and Alan L. Kling. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Aug 1946. 115p photos, diagrs, fold drawings, tables Mi $4.75, Ph $15.00. PB 101206

1. Magnesium - Thermal properties 2. Fire prevention - Airplanes 3. AAF TR 5526 4. FMRC 11125 5. AAF TSEPE 651-27-A.

Sub-title date is Dec 1945. Laboratory no. TSEPE8E. Expenditure order 651-1344. Contract no. W33-038-ac-8437. Contains also Appendix to formal report on phase E and F, Review of magnesium extinguishing agents, by Factory Research Corporation, p. 101-106. Magnesium burning tests, by Ralph B. Williams, May 1946. p. 107-115.

SIMILARITY LAWS FOR TRANSONIC FLOW AROUND WINGS OF FINITE ASPECT RATIO, by Sune B. Berndt. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. Feb 1950. 8p diagr Mi $1.25, Ph $1.25. PB 101396

In this paper these similarity laws are generalized to be valid for wings of finite aspect ratio. Furthermore a similarity law for swept back wings at supersonic speed is given, which takes into consideration the fact that flow is of transonic nature when the mach number component perpendicular to the wing direction approximates to one. KTH AERO TN 14.

SOME CONICAL AND QUASI-CONICAL FLOWS IN LINEARIZED SUPERSONIC-WING THEORY, by Herbert S. Ribner. U. S. National Advisory Committee for Aeronautics. Aug 1950. 61p diagrs, graphs Mi $3.00, Ph $8.75. PB 101385

A number of conical and quasi-conical linearized supersonic flows have been derived. These flows may be applied in lift-cancellation techniques in the determination of wing-lift disturbances that arise at subsonic trailing edges. The two methods of analysis employed both use source distribution and lead to integral equations. One is a development of the membrane method of Evvard; the other is an analog of the superposition method of Schlichting. NACA TN 2147.

STUDY OF EFFECTS OF SWEEP ON THE FLUTTER OF CANTILEVER WINGS, by J. G. Barmby, H. J. Cunningham, and I. E. Garrick. U. S. National Advisory Committee for Aeronautics. Jun 1950. 73p photo, diagrs, graphs, tables Mi $3.50, Ph $10.00. PB 110430

An experimental and analytical investigation of the flutter of uniform, cantilever, sweptback wings is reported. The experiments employed groups of wings swept back by rotating and by shearing. The angle of sweep ranged from 0^{o} to 60^{o} and the Mach numbers extended to approximately 0.85. Comparison with experiment indicates that the analysis developed in the present paper is satisfactory, at least for nearly uniform cantilever wings of moderate length-chord ratios. NACA TN 2121.

TANK TESTS ON THE EFFECT OF SLIPSTREAM ON THE WATER PERFORMANCE OF A LARGE FOUR ENGINED FLYING BOAT (SHETLAND I), by S. Raymond. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Apr 1945. 39p photos, fold. drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101434

1. Flying boats - Porpoising - Gt. Brit. 2. Flying boats - Slipstream - Gt. Brit. 3. Shetland I (Flying boat) 4. ARC CP 6.

Cover date is 1950. S.O. Code no. 23-9006-6.

THEORETICAL ASTISYMMETRIC SPAN LOADING FOR WINGS OF ARBITRARY PLAN FORM AT SUBSONIC SPEEDS, by John DeYoung. U. S. National Advisory Committee for Aeronautics. Jul 1950. 96p graphs, tables Mi $4.25, Ph $12.50. PB 101388

A simplified lifting-surface theory that includes effects of compressibility and spanwise variation of section lift-curve slope is used to provide charts with which antisymmetric loading due to arbitrary antisymmetric angle of attack can be found for wings having symmetric plan forms with a constant spanwise sweep angle of the quarter-chord line. Consideration is given to the flexible wing in roll. Aerodynamic characteristics due to rolling, deflected ailerons, and sideslip of wings with dihedral are considered. Solutions are presented for straight-tapered wings for a range of swept plan forms. NACA TN 2140.

THEORETICAL CALCULATIONS OF THE LATERAL FORCE AND YAWING MOMENT DUE TO ROLLING AT SUPERSONIC SPEEDS FOR SWEPTBACK TAPERED WINGS

WITH STREAMWISE TIPS. SUPERSONIC LEADING EDGES, by Sidney M. Harmon and John C. Martin. U. S. National Advisory Committee for Aeronautics. Jul 1950. 25p diagrs, graphs Mi $2.00, Ph $3.75. PB 101371

Theoretical results are obtained, by means of linearized theory, for the lateral force and yawing moment due to combined angle of attack and roll. The wings considered are tapered and have leading and trailing edges which are each swept at a constant angle; the tips are parallel to the center section. Design curves are presented which permit rapid estimation of the two stability derivatives, rate of change of lateral force and yawing moment with roll, for given values of aspect ratio, taper ratio, Mach number, and leading-edge sweep. NACA TN 2156.

WIND-TUNNEL INVESTIGATION AT LOW SPEED OF A 45° SWEPTBACK UNTAPERED SEMISPAN WING OF ASPECT RATIO 1.59 EQUIPPED WITH VARIOUS 25-PERCENT-CHORD PLAIN FLAPS, by Harold S. Johnson and John R. Hagerman. U. S. National Advisory Committee for Aeronautics. Aug 1950. 24p photo, drawing, graphs Mi $2.00, Ph $3.75. PB 101362

A wind-tunnel investigation at low speed was made to determine the aerodynamic characteristics of a 45° sweptback untapered semispan wing of NACA 64A010 airfoil section and aspect ratio 1.59 equipped with 25-percent-chord unsealed plain flaps having various spans and spanwise locations. Variations of lift, drag, pitching-moment, and flap hinge-moment data with flap span and spanwise location were determined through a large angle-of-attack range. NACA TN 2169.

Instruments

DESIGN OF INSTRUMENT DIALS FOR MAXIMUM LEGIBILITY. PART 4: DIAL GRADUATION, SCALE RANGE AND DIAL SIZE AS FACTORS AFFECTING THE SPEED AND ACCURACY OF SCALE READING, by William E. Kappauf and William M. Smith. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Feb 1950. 25p photo, diagr, graphs, tables Mi $2.00, Ph $3.75. PB 101417

Systematic or large scale reading errors seem to be determined by the same factors or conditions which determine reading time, namely, scale range and those aspects of graduation mark organization which must vary when longer and longer scale ranges are accommodated on a dial of a given size. For Parts 1, 2, and 3 see PB 86023, PB 93616 and PB 110422. USAF Contract no. W33-038 ac-14480. AAF TR 5914, part 4.

TRANSFER FUNCTIONS OF AIRCRAFT IN LATERAL MOTION, by G. Braun. U. S. Air Materiel Command. Engineering Division. Aircraft Laboratory, Wright Field, Dayton, Ohio. Dec 1947. 21p diagrs, graph, table Mi $2.00, Ph $3.75. PB 110127

Transfer functions for lateral motion of an aircraft were developed for the design of a testing platform for automatic pilots. In addition the magnitude of errors involved is discussed. The transfer function in roll for sinusoidal motion of the ailerons and transfer function in yaw for rudder deflections are given. The equations and data presented are sufficient only for preliminary design of the testing platform. AAF TSEAC MR 6-6731-16-1.

Engines and Propellers

CAVITATION TESTS WITH MODEL PROPELLERS IN NATURAL SEA WATER WITH REGARD TO THE GAS CONTENT OF THE WATER AND ITS EFFECT UPON CAVI-

TATION POINT AND PROPELLER CHARACTERISTICS, by Hans Edstrand. Sweden. Statens Skeppsprovningsanstalt, Göthenburg, Sweden. 1950. 78p photo, diagrs, graphs, tables Mi $3.50, Ph $10.00. PB 100910
1. Water - Gas content - Measurement - Sweden 2. Propellers, Ship - Tests - Sweden 3. Sweden. Statens Skeppsprovningsanstalt, Gothenburg, Sweden. Meddelanden no. 15, 1950.

EFFICIENCY OF AEROPLANE PROPELLERS AT HIGH SPEED FLIGHT, by Olof A. M. Holme. Sweden. Kungl. Tekniska Högskolan. Institutionen för Flygteknik. Feb 1950. 22p graphs, tables Mi $2.00, Ph $3.75. PB 110065
Calculations have been made of propeller efficiencies attainable at flight speeds of Mach numbers 0.7 - 0.9 with propellers having tip velocities below the velocity of sound. The results of the calculations are given as diagrams of the propeller efficiency as a function of the Mach number of flight speed and the thrust loading of the propeller. KTH AERO TN 9.

EFFECT OF HEAT AND POWER EXTRACTION ON TURBO JET-ENGINE PERFORMANCE. II. EFFECT OF COMPRESSOR-OUTLET AIR BLEED FOR SPECIFIC MODES OF ENGINE OPERATION, by Frank E. Rom and Stanley L. Koutz. U. S. National Advisory Committee for Aeronautics. Aug 1950. 18p graphs Mi $1.75, Ph $2.50. PB 101383
The effect of compressor-outlet air bleed on the performance of an axial-flow turbojet engine is presented. The effect of altitude, engine-inlet temperature, and flight Mach number on engine performance with air bleed is also shown. NACA TN 2166.

ENTWICKLUNG EINES KRAFTSTOFF PRÜFVERFAHRENS. KLOPFVERHALTEN VON KRAFTSTOFFEN IM FLUGMOTOREN-EINZYLINDER (DEVELOPMENT OF A POWER TEST RUN. KNOCKING OF GASES IN SINGLE CYLINDER AIRPLANE MOTOR), by K. Dehn. Deutsche Versuchsanstalt für Luftfahrt, E. V., Berlin. Institut für Betriebstoff Forschung. May 1937. 49f photos, diagrs, graphs (Text in German) Mi $2.50, Enl Pr $7.50. PB 101047
1. Engines, Aircraft - Knocking - Germany 2. Micro BIOS FD 2876/46, Item 56, Frames 1-47.

FLIGHT INVESTIGATION OF THE EFFECT OF TRANSIENT WING RESPONSE ON MEASURED ACCELERATIONS OF A MODERN TRANSPORT AIRPLANE IN ROUGH AIR, by C. C. Shufflebarger and Harry C. Mickleboro. U. S. National Advisory Committee for Aeronautics. Aug 1950. 18p drawings, graphs, tables Mi $1.75, Ph $2.50. PB 101375
The results of a flight investigation on a modern transport airplane to determine the transient effect of wing flexibility in gusts show that the measured peak acceleration increments at the center of gravity are, on the average, more than 20 percent higher than the true airplane acceleration increments. A slight change of acceleration discrepancy with change of wing weight and speed was indicated. NACA TN 2150.

GENERAL INTEGRAL FORM OF THE BOUNDARY-LAYER EQUATION FOR INCOMPRESSIBLE FLOW WITH AN APPLICATION TO THE CALCULATION OF THE SEPARATION POINT OF TURBULENT BOUNDARY LAYERS, by Neal Tetervin and Chia Chiao Lin. U. S. National Advisory Committee for Aeronautics. Aug 1950. 63p graphs Mi $3.00, Ph $8.75. PB 101374

A general integral form of the boundary-layer equation, valid for either laminar or turbulent incompressible boundary-layer flow, is derived. By using the experimental finding, the general equation is changed to an equation for the space rate of change of the velocity-profile shape parameter. NACA TN 2158.

INSTALLATION OF AN ENGINE NACELLE ON A WING, by R. Smelt, A. G. Smith, F. Smith and B. Davison. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Nov 1939. 83p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.40. PB 101263
1. Nacelles, Engine - Wings - Gt. Brit. 2. Wings - Aerodynamics - Gt. Brit. 3. ARC RM 2406.

Cover date is 1950. S.O. Code no. 23-2406. Contents: Part I. Model tests on a symmetrical wing, by R. Smelt and A. G. Smith. p. 1-12. Part II. Underslung nacelles on cambered wings, by R. Smelt and F. Smith. p. 13-40. Part III. Pitching-moment changes due to nacelles, by F. Smith and R. Smelt. p. 41-46. Part IV. Effects of fuselage and tractor airscrew. p. 47-83.

NOTE ON A METHOD OF CORRECTING FOR LAG IN AIRCRAFT PITOT-STATIC SYSTEMS, by W. J. Charnley. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Sep 1946. 13p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101437

In this note a theoretical solution of the pressure lag in the tubes is developed, and both laboratory and flight tests are described which show how the solution can be modified, to include the instrument mechanical lag. Curves are provided which enable the total lag correction in either speed or altitude to be calculated for any particular aircraft system. Typical figures are given showing the height and speed lag with different aircraft installations and it is shown that for the standard British cockpit layout the lag is small enough to be neglected except for very high rates of descent. Methods of reducing the lag to a minimum are outlined. Cover date is 1950. S.O. Code no. 23-2352. ARC RM 2352.

OB URAVNENIAKH DVIZHENIA RAKETY. (EQUATIONS OF MOTION OF A ROCKET), by F. R. Gantmacher and L. M. Levin. Apr 1950. 21p Mi $1.75, Ph $3.75. PB 100720

The general equations of motion of a rocket are developed in detail. In this work a rocket is defined as an apparatus with a liquid or powder rocket motor. Translation from Prikladnaya matematika i mekhanika, Vol. XI, no. 3, 1947. NACA TM 1255.

ON THE PARTICULAR INTEGRALS OF THE PRANDTL-BUSEMANN ITERATION EQUATIONS FOR THE FLOW OF A COMPRESSIBLE FLUID, by Carl Kaplan. U. S. National Advisory Committee for Aeronautics. Aug 1950. 16p. Mi $1.75, Ph $2.50. PB 101379

The particular integrals of the second-order and third-order Prandtl-Busemann iteration equations for the flow of a compressible fluid are obtained by means of the method in which the complex conjugate variables z and $\bar{z}$ are utilized as the independent variables of the analysis. The assumption is made that the Prandtl-Glauert solution of the linearized or first-order iteration equation for the two-dimensional flow of a compressible fluid is known. The forms of the particular integrals, derived for subsonic flow, are readily adapted to supersonic flows with only a change in sign of one of the parameters of the problem. NACA TN 2159.

PERFORMANCE AND LOAD-RANGE CHARACTERISTICS OF TURBO-JET ENGINE IN TRANSONIC SPEED RANGE, by Bernard Lubarsky. U. S. National Advisory Committee for Aeronautics. May 1950. 46p graphs, tables Mi $2.50, Ph $6.25. PB 110283

An analysis was made of performance and load-range characteristics of turbojet engine for transonic speed range, altitudes from 10,000 to 70,000 feet, compressor pressure ratios from 2 to 30, and turbine-inlet temperatures of 1700°, 2000°, and 2300° R. Values of lift-drag and structure-to-gross-weight ratios were assumed. NACA TN 2088.

PERFORMANCE OF CONICAL JET NOZZLES IN TERMS OF FLOW AND VELOCITY COEFFICIENTS, by Ralph E. Grey, Jr. and H. Dean Wilsted. U. S. National Advisory Committee for Aeronautics. 1949. 12p diagr, drawing, graphs, tables Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 101121

Performance characteristics of conical jet nozzles were determined in an investigation covering a range of pressure ratios from 1.0 to 2.8, cone half-angles from 5° to 90°, and outlet-inlet diameter ratios from 0.50 to 0.91. All nozzles investigated had an inlet diameter of 5 inches. NACA 933.

PRESSURE MEASUREMENTS ON TWO PROPELLER BLADE ROOTS, by R. T. Shields and D. H. Adams. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Dec 1945. 7p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.40. PB 101439

It is concluded that (1) the L/D ratio is appreciably worsened by the cowl pressure gradient; (2) a considerable amount of the loss of total head at the cowl entry arises independently of the blade roots and is due to breakaway on the spinner. Cover date is 1950. S.O. Code no. 23-2354. ARC RM 2354.

SOME NOTES ON THE FLAPPING MOTION OF ROTOR BLADES, by J. B. B. Owen. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1950. 18p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.45. PB 101241

1. Rotor blades, Hinged - Flutter - Gt. Brit. 2. Gt. Brit. Royal Aircraft Establishment, Farnborough, Eng. 3. ARC CP 1.

Royal Aircraft Establishment, Farnborough, Report no. Structures 14, Dec 1947.

TURBO JET THRUST AUGMENTATION BY EVAPORATION OF WATER PRIOR TO MECHANICAL COMPRESSION AS DETERMINED BY USE OF PSYCHROMETRIC CHART, by E. Clinton Wilcox. U. S. National Advisory Committee for Aeronautics. Jun 1950. 37p graphs (1 fold) Mi $2.25, Ph $5.00. PB 110431

The thrust augmentation of turbojet engines resulting from evaporation of water prior to mechanical compression was investigated over a range of flight conditions. A psychrometric chart having total pressure as a variable is presented. Engine performance was determined by means of a generalized performance analysis that permits evaluation of performance over a range of altitudes and flight Mach numbers from data obtained at sea-level, zero Mach number conditions. NACA TN 2105.

TWO-DIMENSIONAL COMPRESSIBLE FLOW IN TURBOMACHINES WITH CONIC FLOW SURFACES, by John D. Stanitz. U. S. National Advisory Committee for

Aeronautics. 1949. 28p diagrs, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.25. PB 110433

A general method of analysis is developed for two-dimensional, steady, compressible flow in stators or rotors of radial- and mixed-flow turbomachines with conic flow surfaces (surfaces of right circular cones generated by center line of flow passage in the axial-radial plane). It is concluded that, if the fluid in high-speed, rotating, radial- and mixed-flow blade systems is compressible, incompressible solutions give poor quantitative results (exception, the slip factor) and, in some respects, poor qualitative results. NACA 935.

Aerodynamics

AERODYNAMIC LOADING OF WINGS WITH ENDPLATES, by A. Robinson. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Feb 1945. 13p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101436

1. Wings - Loading - Gt. Brit. 2. End plates - Gt. Brit. 3. ARC RM 2342. Cover date is 1950. S.O. Code no. 23-2342.

ANALYSIS OF BASE PRESSURE AT SUPERSONIC VELOCITIES AND COMPARISON WITH EXPERIMENT, by Dean R. Chapman. U. S. National Advisory Committee for Aeronautics. Jul 1950. 64p photos, diagrs, graphs Mi $3.00, Ph $8.75. PB 101358

The pressure on the base of an object travelling at supersonic velocity is investigated for both two-dimensional and axially-symmetric bodies. Inviscid-fluid flow is analyzed first and the result obtained. An approximate semi-empirical theory for the base-pressure flow in a viscous fluid is developed from a correlation of certain experiment data. NACA TN 2137.

ANALYTICAL AND EXPERIMENTAL INVESTIGATION OF ADIABATIC TURBULENT FLOW IN SMOOTH TUBES, by Robert G. Deissler. U. S. National Advisory Committee for Aeronautics. Jul 1950. 41p graphs Mi $2.50, Ph $6.25. PB 101181

Equations were derived for the prediction of velocity distributions for fully developed adiabatic turbulent flow in smooth tubes; both the incompressible- and compressible-flow cases were treated. The analysis produced a single equation that represents flow in both the conventional buffer layer and the laminar layer. In order to check the analysis, investigations were made to determine velocity distributions in air flowing without heat transfer in a smooth tube. NACA TN 2138.

APPROXIMATE AERODYNAMIC INFLUENCE COEFFICIENTS FOR WINGS OF ARBITRARY PLAN FORM IN SUBSONIC FLOW, by Franklin W. Diederich. U.S. National Advisory Committee for Aeronautics. Jul 1950. 17p graphs, tables Mi $1.75, Ph $2.50. PB 101157

Aerodynamic influence coefficients for wings of arbitrary plan form in subsonic flow are derived from a simple empirical method of estimating spanwise lift distributions. The application of the coefficients to an aeroelastic analysis is discussed. NACA TN 2092.

BOUNDARY-LAYER TRANSITION ON A COOLED 20° CONE AT MACH NUMBERS OF 1.5 AND 2.0, by Richard Scherrer. U. S. National Advisory Committee for Aeronautics. Jul 1950. 13p drawing, graphs Mi $1.75, Ph $2.50. PB 101156

The laminar boundary layer on a cooled 20° cone was investigated at Mach numbers of 1.5 and 2.0 to determine the variation of the position of transition with surface temperature. Surface cooling was found to delay transition for all test conditions. NACA TN 2131.

COMPARISON OF TWO METHODS OF CALCULATING AERODYNAMIC LOADING ON AN AEROFOIL WITH LARGE SWEEPBACK AND SMALL ASPECT RATIO, by R. Dickson. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1946. 12p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101438

The purpose of the present note is to compare the aerodynamic characteristics of an aerofoil of large sweepback and small aspect ratio, calculated by two methods:— (i) Falkner's nine-point solution, and (ii) a simplified version of this method using only a lifting line on the quarter chord and three pivotal points, situated on the three-quarter chord line. The results are used to give information on the characteristics of an aerofoil with straight taper and moderate aspect ratio and sweepback in compressible flow at a Mach number 0.9. Cover date is 1950. S.O. Code no. 23-2353. ARC RM 2353.

DERIVATION OF DYNAMIC LONGITUDINAL STABILITY DERIVATIVES FOR SUBSONIC COMPRESSIBLE FLOW FROM NONSTATIONARY FLOW THEORY AND APPLICATION TO AN F-80A AIRPLANE, by Irving C. Statler. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. May 1949. 155p diagrs, graphs, tables Mi $6.00, Ph $20.00. PB 101205

1. Stability, Longitudinal 2. Flow, Subsonic - Theory 3. F80A (Airplane) 4. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. 5. AAF TR 5776.

DEVELOPMENT AND PRELIMINARY INVESTIGATION OF A METHOD OF OBTAINING HYPERSONIC AERODYNAMIC DATA BY FIRING MODELS THROUGH HIGHLY COOLED GASES, by Harold V. Soule and Alexander P. Sabol. U. S. National Advisory Committee for Aeronautics. Jul 1950. 29p photos, drawings, diagrs, graphs, tables Mi $2.00, Ph $3.75. PB 101158

Equipment was designed to produce hypersonic phenomena by the use of high model velocities and low acoustical velocities. A commercially available gun produced the model velocities, whereas the reduced velocity of sound in the gas tested was produced by liquefied-gas cooling. NACA TN 2120.

EFFECT OF COMPRESSIBILITY ON THE FLOW AROUND SLENDER BODIES OF REVOLUTION, by Klaus Oswatitsch. Sweden. Kungl. Tekniska Högskolan, Institutionen för Flygteknik. Feb 1950. 8p graph, table Mi $1.25, Ph $1.25. PB 110066

In this paper a simple logarithmic relation between Mach number and change of velocity distribution at subsonic and supersonic flow has been derived. KTH AERO TN 12.

INVESTIGATION OF SEPARATION OF THE TURBULENT BOUNDARY LAYER, by G. B. Schubauer and P. S. Klebanoff. U. S. National Advisory Committee for Aeronautics. Aug 1950. 53p photos, diagrs, drawings, graphs, tables Mi $2.75, Ph $7.50. PB 101355

An investigation was conducted on a turbulent boundary layer near a smooth surface with pressure gradients sufficient to cause flow separation. The investigation consisted of measurements of mean flow, three components of turbulence intensity,

turbulent shearing stress, and correlations between two fluctuation components at a point and between the same component at different points. Results are given in the form of tables and graphs. The discussion deals first with separation, and then with the more fundamental question of basic concepts of turbulent flow. NACA TN 2133.

INVESTIGATION OF TURBULENT FLOW IN A TWO-DIMENSIONAL CHANNEL, by John Laufer. U. S. National Advisory Committee for Aeronautics. Jul 1950. 65p photos, drawings, graphs, table Mi $3.00, Ph $8.75. PB 101359

A detailed exploration of the turbulent flow characteristics in a two-dimensional channel is presented. The measurements were made at three Reynolds numbers, 12,300, 30,800, and 61,600, based on the half width of the channel and the maximum mean velocity. A channel of 5-inch width and 12:1 aspect ratio was used for the investigation. NACA TN 2123.

LIFTING SURFACES IN SUPERSONIC FLOW, PT. I: TWO-DIMENSIONAL THEORY, by Simon Ostrach. Brown University. Graduate Division of Applied Mathematics. Dec 1949. 62p diagrs Mi $3.00, Ph $8.75. PB 101146

1. Airfoils - Aerodynamics 2. Airfoils - Lift 3. Flow, Supersonic 4. Wings, Sweptback 5. AAF TR 102-AC 49/7-100.

A-9-M-VIII/1.

LINEARIZED SUPERSONIC AXIALLY SYMMETRIC FLOW ABOUT OPEN-NOSED BODIES OBTAINED BY USE OF STREAM FUNCTION, by Franklin Moore. U. S. National Advisory Committee for Aeronautics. Jun 1950. 30p diagr, graph, tables Mi $2.00, Ph $3.75. PB 110429

A singular family of supersonic source-distribution functions is applied to computation of pressures on the forward part of open-nosed bodies of revolution at zero yaw in linearized supersonic flow. Linearized formulas are proposed for the strength and the inclination of the bow shock away from the body. The use of Stokes' stream function for axially symmetric problems in linearized supersonic flow is discussed. First-order relations were obtained for attenuation of shock and flow deflection outward along the shock. NACA TN 2116.

METHOD FOR PREDICTING THE TRANSONIC FLOW OVER AIRFOILS AND SIMILAR BODIES FROM DATA OBTAINED AT SMALL MACH NUMBERS, by Hsue-shen Tsien and Andraj Fejer. California Institute of Technology, Pasadena, Calif. Guggenheim Aeronautics Laboratory. Dec 1944. 135p graphs, tables Mi $5.50, Ph $17.50. PB 101368

1. Airfoils - Aerodynamics 2. Flow, Transonic 3. Mach number - Effect.

Numerical computations by B. Canright. Submitted in partial fulfillment of Compressibility Effect Project, Contract no. W35-038 ac-1717 (11592). Will not reproduce well.

METHOD OF ANALYSIS FOR COMPRESSIBLE FLOW THROUGH MIXED-FLOW CENTRIFUGAL IMPELLERS OF ARBITRARY DESIGN, by Joseph T. Hamrick, Ambrose Ginsburg, and Walter M. Osborn. U. S. National Advisory Committee for Aeronautics. Aug 1950. 29p diagrs, graphs Mi $2.00, Ph $3.75. PB 101377

A method is presented for the analysis of compressible flow between the hub and the shroud of mixed-flow impellers of arbitrary design. Axial symmetry was assumed, but the forces in the meridional (hub-shroud) plane, which are derived from

The laminar boundary layer on a cooled 20^{o} cone was investigated at Mach numbers of 1.5 and 2.0 to determine the variation of the position of transition with surface temperature. Surface cooling was found to delay transition for all test conditions. NACA TN 2131.

COMPARISON OF TWO METHODS OF CALCULATING AERODYNAMIC LOADING ON AN AEROFOIL WITH LARGE SWEEPBACK AND SMALL ASPECT RATIO, by R. Dickson. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1946. 12p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101438

The purpose of the present note is to compare the aerodynamic characteristics of an aerofoil of large sweepback and small aspect ratio, calculated by two methods:— (i) Falkner's nine-point solution, and (ii) a simplified version of this method using only a lifting line on the quarter chord and three pivotal points, situated on the three-quarter chord line. The results are used to give information on the characteristics of an aerofoil with straight taper and moderate aspect ratio and sweepback in compressible flow at a Mach number 0.9. Cover date is 1950. S.O. Code no. 23-2353. ARC RM 2353.

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1. Stability, Longitudinal 2. Flow, Subsonic - Theory 3. F80A (Airplane) 4. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. 5. AAF TR 5776.

DEVELOPMENT AND PRELIMINARY INVESTIGATION OF A METHOD OF OBTAINING HYPERSONIC AERODYNAMIC DATA BY FIRING MODELS THROUGH HIGHLY COOLED GASES, by Harold V. Soule and Alexander P. Sabol. U. S. National Advisory Committee for Aeronautics. Jul 1950. 29p photos, drawings, diagrs, graphs, tables Mi $2.00, Ph $3.75. PB 101158

Equipment was designed to produce hypersonic phenomena by the use of high model velocities and low acoustical velocities. A commercially available gun produced the model velocities, whereas the reduced velocity of sound in the gas tested was produced by liquefied-gas cooling. NACA TN 2120.

EFFECT OF COMPRESSIBILITY ON THE FLOW AROUND SLENDER BODIES OF REVOLUTION, by Klaus Oswatitsch. Sweden. Kungl. Tekniska Högskolan, Institutionen för Flygteknik. Feb 1950. 8p graph, table Mi $1.25, Ph $1.25. PB 110066

In this paper a simple logarithmic relation between Mach number and change of velocity distribution at subsonic and supersonic flow has been derived. KTH AERO TN 12.

INVESTIGATION OF SEPARATION OF THE TURBULENT BOUNDARY LAYER, by G. B. Schubauer and P. S. Klebanoff. U. S. National Advisory Committee for Aeronautics. Aug 1950. 53p photos, diagrs, drawings, graphs, tables Mi $2.75, Ph $7.50. PB 101355

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INVESTIGATION OF TURBULENT FLOW IN A TWO-DIMENSIONAL CHANNEL, by John Laufer. U. S. National Advisory Committee for Aeronautics. Jul 1950. 65p photos, drawings, graphs, table Mi $3.00, Ph $8.75. PB 101359

A detailed exploration of the turbulent flow characteristics in a two-dimensional channel is presented. The measurements were made at three Reynolds numbers, 12,300, 30,800, and 61,600, based on the half width of the channel and the maximum mean velocity. A channel of 5-inch width and 12:1 aspect ratio was used for the investigation. NACA TN 2123.

LIFTING SURFACES IN SUPERSONIC FLOW, PT. I: TWO-DIMENSIONAL THEORY, by Simon Ostrach. Brown University. Graduate Division of Applied Mathematics. Dec 1949. 62p diagrs Mi $3.00, Ph $8.75. PB 101146

1. Airfoils - Aerodynamics 2. Airfoils - Lift 3. Flow, Supersonic 4. Wings, Sweptback 5. AAF TR 102-AC 49/7-100.

A-9-M-VIII/1.

LINEARIZED SUPERSONIC AXIALLY SYMMETRIC FLOW ABOUT OPEN-NOSED BODIES OBTAINED BY USE OF STREAM FUNCTION, by Franklin Moore. U. S. National Advisory Committee for Aeronautics. Jun 1950. 30p diagr, graph, tables Mi $2.00, Ph $3.75. PB 110429

A singular family of supersonic source-distribution functions is applied to computation of pressures on the forward part of open-nosed bodies of revolution at zero yaw in linearized supersonic flow. Linearized formulas are proposed for the strength and the inclination of the bow shock away from the body. The use of Stokes' stream function for axially symmetric problems in linearized supersonic flow is discussed. First-order relations were obtained for attenuation of shock and flow deflection outward along the shock. NACA TN 2116.

METHOD FOR PREDICTING THE TRANSONIC FLOW OVER AIRFOILS AND SIMILAR BODIES FROM DATA OBTAINED AT SMALL MACH NUMBERS, by Hsue-shen Tsien and Andraj Fejer. California Institute of Technology, Pasadena, Calif. Guggenheim Aeronautics Laboratory. Dec 1944. 135p graphs, tables Mi $5.50, Ph $17.50. PB 101368

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A method is presented for the analysis of compressible flow between the hub and the shroud of mixed-flow impellers of arbitrary design. Axial symmetry was assumed, but the forces in the meridional (hub-shroud) plane, which are derived from

tangential pressure gradients, were taken into account. The method was applied to an experimental mixed-flow impeller. Choked flow at the impeller inlet as determined by the analysis was verified by experimental results. NACA TN 2165.

NOTES ON THE DOG FIGHT, by S. B. Gates. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1940. 8p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.40. PB 101262
1. Airplanes, Fighter - Aerodynamics - Gt. Brit. 2. ARC RM 2381.
Cover date is 1950. S.O. Code no. 23-2381.

RESEARCH ON HIGH SPEED AERODYNAMICS AT THE ROYAL AIRCRAFT ESTABLISHMENT FROM 1942 TO 1945, BY THE STAFFS OF THE HIGH SPEED TUNNEL AND THE HIGH SPEED FLIGHT SECTIONS. GT. BRIT. MINISTRY OF SUPPLY. AERONAUTICAL RESEARCH COUNCIL. EDITED by W. A. Mair. Sep 1946. 157p photos, diagrs, drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101435
1. Aerodynamics - Research - Gt. Brit. 2. Gt. Brit. Royal Aircraft Establishment, Farnborough, England 3. ARC RM 2222.
Cover date is 1950. S.O. Code no. 23-2222.

SPECTRUMS AND DIFFUSION IN A ROUND TURBULENT JET, by Stanley Corrsin and Mahinder S. Uberoi. U. S. National Advisory Committee for Aeronautics. Jul 1950. 81p photo, drawing, diagrs, graphs Mi $3.75, Ph $11.25. PB 101180
In a round turbulent jet at room temperature, measurement of the shear correlation coefficient as a function of frequency (through band-pass filters) has given a rather direct verification of Kolmogoroff's local-isotropy hypothesis. One-dimensional power spectrums of velocity and temperature fluctuations, measured in unheated and heated jets, respectively, have been contrasted. Under the same conditions, the two corresponding transverse correlation functions have been measured and compared. Measurements have been made of the mean thermal wakes behind local (line) heat sources in the unheated turbulent jet, and the order of magnitude of the temperature fluctuations has been determined. NACA TN 2124.

THEORETICAL WAVE DRAGS AND PRESSURE DISTRIBUTIONS FOR AXIALLY SYMMETRIC OPEN-NOSE BODIES, by John R. Jack. U. S. National Advisory Committee for Aeronautics. Jun 1950. 35p diagrs, graphs, tables Mi $2.25, Ph $5.00. PB 110432
The variations of pressure distributions and coefficients of wave drag with fineness ratio, Mach number, and area ratio were calculated from linearized theory for a variety of open-nose bodies of revolution at zero angle of attack. Values of pressure distribution and coefficients of wave drag are given for several bodies with curved and straight lips and for design and off-design conditions including the effects of additive drag. NACA TN 2115.

THEORETISCHE UND EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DEN INDUZIERTEN SEITENWIND VON FLUGZUGEN (STUDY OF THE EFFECT OF AN INDUCED CROSS WIND ON THE AERODYNAMIC CHARACTERISTICS OF AN AIRPLANE), by Willi Jacobs. Aug 1943. 152f diagrs, graphs, tables (Text in German) Mi $6.00, Enl Pr $21.25. PB 101209
1. Airplanes - Aerodynamics - Germany 2. Stability, Lateral - Research - Germany 3. Interference, Aerodynamics - Germany 4. Airplanes - Yawing - Germany.

Thesis-Technische Hochschule, Braunschweig, Ger. Some frames will not reproduce well. Includes English abstract.

USE OF EQUIVALENT SLOPES IN VORTEX LATTICE THEORY, by V. M. Falkner. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Mar 1946. 12p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.65. PB 101249

1. Lattice sums - Gt. Brit. 2. Vortex motion - Theory - Gt. Brit. 3. Mathematics, Applied - Aerodynamics - Gt. Brit. 4. Wings - Loading - Gt. Brit. 5. ARC RM 2293.

Cover date is 1950. S.O. Code no. 23-2293.

Land Transportation

COMPARISON OF ACTUAL AND MODEL TESTS ON THE MOMENTUM FORCE OF THE 170. V. DAIMLER-BENZ CAR, by E. Sawatzki and W. Weiss. Stuttgart. Technische Hochschule. Forschungsinstitut für Kraftfahrwesen und Fahrzugmotoren. Jan 1941. 46f photos, graphs, tables (Text in German) Mi $2.50, Enl Pr $7.50. PB 101271

1. Motor vehicles - Performance - Tests - Germany 2. FKFS 390 3. Micro BIOS FD 2174/48, Frames 464-509.

Abstract available as PB 101271s. 1p. Mi $1.25, Ph $1.25.

FORCE OF WIND IN RELATION TO MOTOR VEHICLES AND THE AERODYNAMIC MEDIUMS FOR MAINTAINING THE COURSE OF STEERING. Stuttgart. Technische Hochschule. Forschungsinstitut für Kraftfahrwesen und Fahrzugmotoren. n.d. 69f photos, drawings, graphs Mi $3.00, Enl Pr $10.00. PB 101270

1. Motor vehicles - Forms - Germany 2. FKFS 324 3. Micro BIOS FD 2172/48, Frames 317-382.

Abstract available as PB 101270s. 1p. Mi $1.25, Ph $1.25. Four pages of text missing.

TESTS ON MODELS FOR STUDYING THE TRAILER MOVEMENTS IN RELATION TO THE ATTACHMENT FITTINGS USED, by L. Huber and O. Dietz. Stuttgart. Technische Hochschule. Forschungsinstitut für Kraftfahrwesen und Fahrzugmotoren. Jun 1937. 21f photos, graphs (Text in German) Mi $2.00, Enl Pr $5.00. PB 101269

1. Trailers - Sidesway - Germany 2. FKFS 215 3. Micro BIOS FD 2167/48, Frames 87-107A.

Abstract available as PB 101269s. 1p. Mi $1.25, Ph $1.25.

Marine Transportation

THE CATHODIC PROTECTION OF SHIPS' HULLS IN SEA WATER, A CRITICAL REVIEW OF THE PROBLEM, by Sigmund Schuldiner. U. S. Naval Research Laboratory. Jan 1950. 65p drawings, graphs, tables Mi $3.00, Ph $8.75. PB 101169

A review of the general theory of corrosion and cathodic protection is presented together with a survey of the work done on the specific problem of the cathodic protection of ships' hulls in sea water. The literature is analyzed and various suggestions are made for the conduct of further research. NRL R3616.

HIGH PRESSURE BOILERS FOR NAVAL CRAFT. Wagner Hochdruck Dampfturbinen K. G., Hamburg, Ger. 1940-1944. 422f photos, drawings, graphs, tables (Text in German) Mi $9.00, Enl Pr $56.25. PB 101092

1. Boilers, Marine - Germany 2. Boilers, Marine - Design - Germany 3. Micro BIOS FD 1842/47, Frames 1-335.

Some drawings will not reproduce well. Abstract available as PB 101092s. 2p. Mi $1.25, Ph $1.25.

MANUFACTURE AND DESIGN OF PROPELLERS IN GERMANY, REPORT PREPARED BY U. S. NAVAL TECHNICAL MISSION IN EUROPE. British Intelligence Objectives Sub-Committee. Oct 1945. 127p photos, fold drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.50. PB 101408

1. Propellers, Ship - Design - Germany 2. Propellers, Submarine - Design - Germany 3. Propellers, Marine - Design - Germany 4. Germany. Oberkommando der Kriegsmarine 5. U. S. Naval Technical Mission in Europe 6. BIOS M 76.

S.O. Code no. 51-277-76.

PROPOSED SHOCK AND VIBRATION REQUIREMENTS OF SHIPBOARD MOUNTS, by Ralph E. Blake and J. Paul Walsh. U. S. Naval Research Laboratory. Jan 1950. 23p drawings, tables, graphs Mi $2.00, Ph $3.75. PB 110338

The performance under shock and steady state vibration which should be required of mounts in order that they be regarded as satisfactory for general use on naval vessels is proposed. The performance under shock is judged on the basis of the shock spectrum of the motion of the load supported by the mount. Maximum allowable values of the shock spectra are proposed in terms of load rating, the travel, and initial height of the mount. The performance under steady state vibration is judged on the basis of either the natural frequencies or transmissibilities of a uniform-density, cubical load of the appropriate mass supported by four mounts. NRL R 3597.

RECENT DEVELOPMENTS IN THE THEORY OF SLIP VIBRATION, by R. T. McGoldrick, A. N. Gleyzal, R. L. Hess and G. K. Hess, Jr. U. S. Office of Naval Research. May 1946. 265p diagrs, drawings, graphs, tables Mi $9.00, Ph $33.75. PB 100730

1. Ships - Vibration 2. U. S. David W. Taylor Model Basin, Carderock, Md. 3. Michigan University.

Study of ship vibration theory at the David Taylor Model Basin and at University of Michigan under contract with the Office of Naval Research.

WATER SUPPLY, SANITATION AND PUBLIC HEALTH

CLARIFICATION OF DRINKING WATER. FINAL REPORT NO. 100-13, PREPARED by Martin Wolin. New York University. College of Engineering. Engineering Research Division. Jul 1948. 202p diagrs, graphs Mi $7.50, Ph $26.25. PB 100483

1. Water - Purification.

Prepared in accordance with provisions of contract no. W. 44-099-eng-454, between the Engineer Board and New York University. New York University Research Division, Project 100.

STREAM SANITATION IN FLORIDA, by Earle B. Phelps and David E. Barry. Florida. University. College of Engineering and Industrial Experiment Station, Gainesville, Fla. May 1950. 57p maps, graphs, tables Available from Florida Engineering and Industrial Experiment Station. College of Engineering. University of Florida, Gainesville, Fla. PB 101064

1. Water supply - Sanitation 2. Water - Purification.

Bulletin series no. 34. Engineering progress at the University of Florida, Vol. IV, no. 5.

SPECTIC TANK STUDIES (INDIVIDUAL SEWAGE DISPOSAL SYSTEMS), by Laurence Shuman and Fred W. McGhan. U. S. Housing and Home Finance Agency. May 1950. 85p drawings, graphs, tables Available from U. S. Housing and Home Finance Agency, Washington 25, D. C. PB 101419

1. Septic tanks 4. HHFA TP 14.

CONTROL EQUIPMENT AND PROTECTIVE GEAR IN MODERN HYDROPOWER STATIONS OF THE SWEDISH STATE POWER BOARD. Sweden. Kungl. Vattenfallstyrelsen. Mar 1950. 15p photos, diagrs, tables Mi $1.75, Ph $2.50. PB 110425

1. Water supply - Equipment - Sweden.

Publication no. 3.

MISCELLANEOUS

ACCRETION OF BEACH SAND BEHIND A DETACHED BREAK-WATER, by John W. Handin and John C. Ludwick. U. S. Beach Erosion Board. May 1950. 16p map, diagr, graph, table Mi $1.75, Ph $2.50. Also available free from Beach Erosion Board, U. S. Corps of Engineers, 5201 Little Falls Road, N. W., Washington 16, D.C. PB 101025

1. Sands, Beach 2. Oceanography 3. California. University. Scripps Institution of Oceanography 4. ENG BEB TM 16.

Contribution from Scripps Institution of Oceanography, new series, no. 445. Report appeared in limited issue as Submarine Geology report no. 8 of Scripps Institute of Oceanography, University of California.

DEVELOPMENT OF FLIGHT NURSES MEDICAL BAG XK NO. 2, by Benjamin A. Strickland, Jr., Alice R. Krieble, Maynard F. Tinkham, Frances P. Thorp, George L. Hahn. U. S. Army Air Forces. School of Aviation Medicine, Randolph Field, Tex. Project no. 21-02-020. Apr 1950. 10p photos Mi $1.25, Ph $1.25. PB 110100

The development of a unit, complete with carrying case and contents for adequately equipping the flight nurse to provide routine and emergency nursing care while engaged in air evacuation missions. Tables and photos attached. AAF SAM Project 21-02-020.

INQUIRY INTO COMMUNAL LAUNDRY FACILITIES, by Janet C. Wilson. Gt. Brit. Ministry of Works. 1949. 37p photos, diagrs, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $.30. PB 101021

1. Laundries - Gt. Brit. 2. DSIR NB SR 9.

S.O. Code no. 70-614.

JAPANESE FUR SEALING, by Oliver L. Austin, Jr. and Ford Wilke. Supreme Commander for the Allied Powers. Natural Resources Section. Jul 1950. 92p photos, maps, tables Mi $4.25, Ph $12.50. PB 101234

This report has been prepared by assembling the available data on the distribution, abundance, and ecology of the fur seal in Japanese waters, with special reference to the species importance to the Japanese Economy. It is based on investigations conducted in the field in 1948-49 by the staff of the Wildlife Branch, Fisheries Division, Natural Resources Section, on published records and statistics from the formerly secret files of the Japanese Bureau of Fisheries, and on a thorough review of the available Japanese literature on the subject. SCAP NRS 129.

LANTBRUKSVAGNARNAS KONSTRUKTION OCH DIMENSIONERING MED HÄNSYN TILL STYRKA OCH HALLBARHET. (CONSIDERATIONS OF STRENGTH AND DURABILITY IN THE DESIGN AND DIMENSIONING OF FARM WAGONS), av Sigfrid Bjerninger. Jordbrukstekniska Institutet, Ultuna, Uppsala, Sweden. Apr 1950. 74p photos, diagrs, drawings, tables (Text in Swedish) Mi $3.50, Ph $10.00.PB 101451

Breaking forces, forces in the wagon drawbar and lateral forces are discussed. Certain recommendations are given for the choice of these forces. The problem of fatigue and the safety factors necessary to ensure adequate length of life are dealt with. Various different types of steel, light metal, and wood are compared with one another as regards strength and weight. The great importance of careful choice of design is shown. The design must be drawn up with due regard to the forces to which the wagon is chiefly subjected. Examples are given of calculations of strength for some of the most important parts of a wagon. Jordbrukstekniska Institutet, Ultuna Uppsala, Sweden. Meddelande 229. Summary in English.

NORMUNG IN ALLER WELT (STANDARDIZATION ALL OVER THE WORLD; SURVEY OF THE DEVELOPMENT AND THE PRESENT STATE OF NATIONAL AND INTERNATIONAL STANDARDIZATION), by Ing. Kastorff. Deutscher Normenausschuss E. V., Berlin. Jan 1946. 48f maps (Text in German) Mi $2.50, Enl Pr $7.50. PB 110367

1. Standardization 2. Micro BIOS FD 3585/48, Frames 1-46.

Abstract available as PB 110367s. 2p. Mi $1.25, Ph $1.25.

RECORDER REPRODUCER EQUIPMENT, CONTRACTS NOBS-11273, NOBS-11377, MANUFACTURED BY THE SOUNDSCRIBER CORP., NEW HAVEN, CONN., U. S. A. U. S. Navy. n.d. 107p photos, drawings, diagrs (part fold), tables Mi $4.50, Ph $13.75. PB 101155

1. Recorders, Sound 2. Reproducers, Sound 3. NAVSHIPS IC IB 545.

REPORT OF THE TECHNICAL MISSION TO CUBA, A. C. SHIRE, EDITOR AND CHIEF OF MISSION. U. S. Board of Economic Warfare. Jun 1943. 192p fold diagrs, fold graphs, maps Mi $7.00, Ph $26.25. PB 100422

TEST OF NORISHMENT OF THE SHORE BY OFFSHORE DISPOSITION OF SAND, LONG BRANCH, NEW JERSEY, by J. V. Hall and W. J. Herron. U. S. Beach Erosion Board. Jun 1950. 34p diagrs, map, tables Mi $2.25, Ph $5.00. Available free from Beach Erosion Board, U. S. Corps of Engineers, 5201 Little Falls Road,

N. W., Washington 16, D. C. PB 101026
1. Sands, Beach 2. Oceanography 3. ENG BEB TM 17.
Paper presents the results of a cooperative study between the New York district and the Beach Erosion Board, Corps of Engineers.

VALVE, OXYGEN, MASK EXHALATION, PRESSURE COMPENSATING, by Ernest A. Horns. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Apr 1950. 11p photos, drawings, graphs, tables Mi $1.75, Ph $2.50. PB 110280
1. Valves, Oxygen - Pressure compensating 2. Masks, Exhalation 3. B-795972-1 (Oxygen valve) 4. Bendix Aviation Corp. Eclipse-Pioneer Div., Teterboro, N. J. 5. AAF TSEAA MR 660-124-D.

PATENTS

Chemicals and Allied Products

GELATINIERUNGSMITTEL FÜR ORGANISCHE LÖSUNGSMITTEL (ALUMINUM COMPOUNDS AS GELATINIZING AGENTS FOR ORGANIC SOLVENTS). Steinkohlenbergwerk Rheinpreussen, Homberg, Ger. Jul 1942. 3f (Text in German) Mi $1.25, Enl Pr $1.50. PB 101290
1. Gelatinizing agents - Patents - Germany 2. Solvents - Gelatinizing agents - Patents - Germany 3. Patents - Germany St 62049 IVc/22 Jul 10, 1942 4. Micro BIOS FD 1311/49, Frames 1-2.
Abstract available as PB 101290s. 1p. Mi $1.25, Ph $1.25.

MANUFACTURING PROCESS OF PHOSPHATES CONTAINING COLLOIDAL SILICIC ACID. Westfälisch-Anhaltische Sprengstoff A. G., Reinsdorf, Ger. 1936-1938. 125f (Text in German) Mi $5.00, Enl Pr $17.50. PB 101108
1. Fertilizers and manuers - Manufacture - Patents - Germany 2. Micro BIOS FD 1828/46, Frames 1270-1391.
English abstract included. Abstract available as PB 101108s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS RELATING TO THE PRODUCTION OF METHANE. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1936-1943. 38f diagrs (Text in German) Mi $2.25, Enl Pr $6.25. PB 110364
1. Methane - Production - Patents - Germany 2. Micro BIOS FD 845/49, Frames 1-38.
Abstract available as PB 110364s. 2p. Mi $1.25, Ph $1.25.

Electrical Machinery, Equipment and Supplies

AUS MEHREREN EINZELLAGERN ZUSAMMENGESETZTES KUGEL-, ROLLENODER GLEITLAGER. (BEARING CONSISTING OF SEVERAL BALL, ROLLER OR SLIDING BEARINGS ASSEMBLED TOGETHER). Deutsche Waffen- und Munitionsfabriken A. G., Berlin. Apr 1911. 7p drawing Mi $1.25, Ph $1.25. PB 110124
1. Bearings, Sliding - Patents - Germany 2. GP 240960 3. NAVSHIPS Code 366 4. NAVSHIPS T 376.

Patented in Germany since 26 April 1911. Longest duration 20 March 1923. Translated by F. Rizzo, Mar 1950. German patent no. 240960 published 21 Nov 1911.

PATENT APPLICATIONS FOR FREQUENCY MODULATION TRANSMITTERS AND RECEIVERS. Telefunken G.m.b.H., Berlin. 1941. 37f drawings (Text in German) Mi $2.25, Enl Pr $6.25. PB 110196

1. Receivers, Frequency - Patents - Germany 2. Transmitters, Frequency modulation - Patents - Germany 3. Patents - Germany T55503 VIIIa/21a4 May 15, 1941 4. Patents - Germany T58401 VIIIa/21a4 Dec 9, 1942 5. Patents - Germany T55410 VIIIa/21a4 Apr 30, 1941. 6. Patents - Germany T55921 VIIIa/21a4 Jul 16, 1941 7. Patents - Germany T55924 VIIIa/21a4 Jul 17, 1941 8. Patents - Germany T56010 VIIIa/21a4 Aug 4, 1941 9. Micro BIOS DOCS 2259/2035 10. Micro BIOS FD 2634/49, Frames 1-35.

Abstract available as PB 110196s. 2p. Mi $1.25, Ph $1.25.

PATENT APPLICATIONS FOR TELEVISION TUBES. Telefunken G.m.b.H., Berlin. Jun 1941. 23f drawings (Text in German) Mi $2.00, Enl Pr $5.00. PB 101316

1. Tubes, Television - Patents - Germany 2. Patents - Germany - T 55845 VIIIa/21a 1 Rep. 7038 Jun 30, 1941 3. Patents - Germany - T 55764 VIIIa/21a 1 Rep. 7021 Jun 20, 1941 4. Micro BIOS FD 2359/49, Frames 1-22.

Abstract available as PB 101316s. 1p. Mi $1.25, Ph $1.25.

Machinery

KRAAGBLOK MET LOSSE OM DEN KRAAG DER AS GEGROEPEERDE BEWEEGBARE DRUKSTUKKEN. (COLLAR BLOCK WITH MOVABLE THRUST PIECES ASSEMBLED AROUND THE SHAFT COLLAR). Vulkan Werke Hamburg & Stettin A. G., Hamburg, Ger. Dec 1920. 4p drawing Mi $1.25, Ph $1.25. PB 110126

1. Bearings, Sliding - Patents - Netherlands 2. Bearings, Sliding - Patents - Gt. Brit. 3. Bearings, Sliding - Patents - France 4. NAVSHIPS Code 366 5. NAVSHIPS T 373.

Dutch patent no. 8850. Netherlands application no. 17482 submitted 21 Dec 1940, made public 15 Sep 1922, taking precedence from 3 May 1916 (Germany), dating 16 Jan 1923. Such a collar block is known under British Patent no. 436/1915 and French Patent no. 459310, V, 3.

PATENT APPLICATION FOR A MOULD WASH FOR CASTING LIGHT METALS. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1943. 6f (Text in German and English) Mi $1.25, Enl Pr $1.50. PB 110168

1. Castings - Molds - Patents - Germany 2. Patents - Germany Wo 3193 3. Micro BIOS FD 1105/48, Frame 1+2.

Abstract available as PB 110168s. 1p. Mi $1.25, Ph $1.25.

PATENT APPLICATION FOR A PROCESS FOR PROVIDING MELTING FURNACES AND CRUCIBLES WITH A COATING SUBSTANTIALLY CONSISTING OF ALUMINUM OXIDE AND/OR MAGNESIUM OXIDE. I. G. Farbenindustrie A. G., Bitterfeld, Ger. 1943. 7f (Text in German and English) Mi $1.25, Enl Pr $2.50. PB 110167

1. Crucibles - Coatings - Patents - Germany 2. Furnaces, High temperature - Coatings - Patents - Germany 3. Patents - Germany Wo 3099 4. Micro BIOS FD 1100/48, Frames 1-3+3.

Abstract available as PB 110167s. 1p. Mi $1.25, Ph $1.25.

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SB-1	Cements and Concrete	Jan 1949
SB-2	Protective Coatings for Metals 25¢ a copy	Jul 1950
SB-3	Plastics	Jan 1950
SB-4	Glass and Glass Technology	Mar 1949
SB-5	Textile Machinery	Jan 1949
SB-6	Infrared 25¢ a copy	May 1950
SB-7	Wire and Tape Recorders	Mar 1949
SB-8	Construction	Mar 1949
SB-9	Adhesives	Mar 1949
SB-10	Insecticides and Rodenticides	Jan 1950
SB-11	Drugs and Pharmaceuticals	Mar 1949
SB-12	Prevention of Deterioration (Being Revised)	Mar 1949
SB-15	Psychology	Apr 1949
SB-17	German Dyestuffs and Dyestuff Intermediates	May 1949
SB-18	Soups and Detergents	Jul 1950
SB-19	Blood Substitutes	Jul 1949
SB-20	Titanium	Sep 1949
SB-21	Railroad transportation	Sep 1949
SB-22	Aerosols	Sep 1949
SB-23	Fischer-Tropsch Process 50¢ a copy	Oct 1949
SB-24	Tanning Agents 25¢ a copy	Apr 1950
	Acetylene	Mar 1947
	Ceramics	Feb 1947
	Chlor-Fako Reports	Mar 1947
	Chlorine	Mar 1947
	Color Photography	Apr 1948
	Cutting Tools	Mar 1948
	Forest, Forestry and Wood Products	Feb 1947
	German Compressor Industry	n.d.
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	Iron Ores	Feb 1947
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	Paper	Feb 1947
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	Plywood	Mar 1947
	Rocket Motors	Mar 1947
	Rocket Propellants - Germany	Mar 1947
	Translated German Documents, List of	Mar 1948
	Vibrators, Tampers, Pneumatic Tools and Drills	Mar 1947
	Water Supply and Sewage Disposal	Oct 1947

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117 Ellicott St.

Butte, Mont.
14 W. Granite St.

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